# The Orchadian

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Official Journal of the Australasian Native Orchid Society

*Sarcochilus australis*
Kurrajong, New South Wales
Photo Michael Harrison

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**Editor, *The Orchadian*:**
Peter Eygelshoven
13 Weeroona Ave,
Elanora Heights, NSW 2101.
peygelshoven@optusnet.com.au

**Membership Officer:**
Bill Dobson;
34 Lynwood Ave, Cromer 2099
bdobson@optusnet.com.au
All membership enquires should be directed to Bill Dobson.

**Conservation Officer:**
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**ANOS CORRESPONDENCE:**
A.N.O.S. Inc. P.O. Box 318,
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# *The Orchadian*

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## Editorial.

Welcome to the March issue. We start with the Ira Butler Trophy results for 2004 from Roslyn Capell, Secretary I.B.T.C., (as well as our President). Congratulations to all the winners.

I have reprinted, with permission, the paper which Michael Harrison presented at the 5th Conference at Campelltown. I felt this paper on Twig Epiphytes of Australia, needed a wider reading by orchid growers and I think you will agree it is a wonderful article. There are a few others I hope to use in future issues. The Proceedings of the Conference is still available through ANOS for $25, if you would like a copy, it is well worth having.

Another informative article from Lachlan Copeland on the orchids of Iluka Reserve in northern New South Wales and an article from Roger Herraman, of South Australia, on his search to see *Cymbidium canaliculatum* in its natural habitat.

David Jones and Gary Brockman describe a new species of *Hydrorchis* (*Microtis*) from Western Australia. Alan Stephenson, of Nowra, has found another long lost species from his home area, *Arachnorchis tessellata*. We finish with a show report from Francis Wilde of the ANOS Geelong Group Annual Show.

Group Show reports through the pages of *The Orchadian* are becoming quite rare. I believe a large majority of readers are interested in what is winning at shows around the country, if only to keep up with winning names of orchids. It gives them something to look for when purchasing seedlings or plants from nurseries or at sales tables. I would be interested in receiving reports, with photos, from members or Groups.

Thanks once again for your continued support and do not forget to renew your membership ASAP.
Peter

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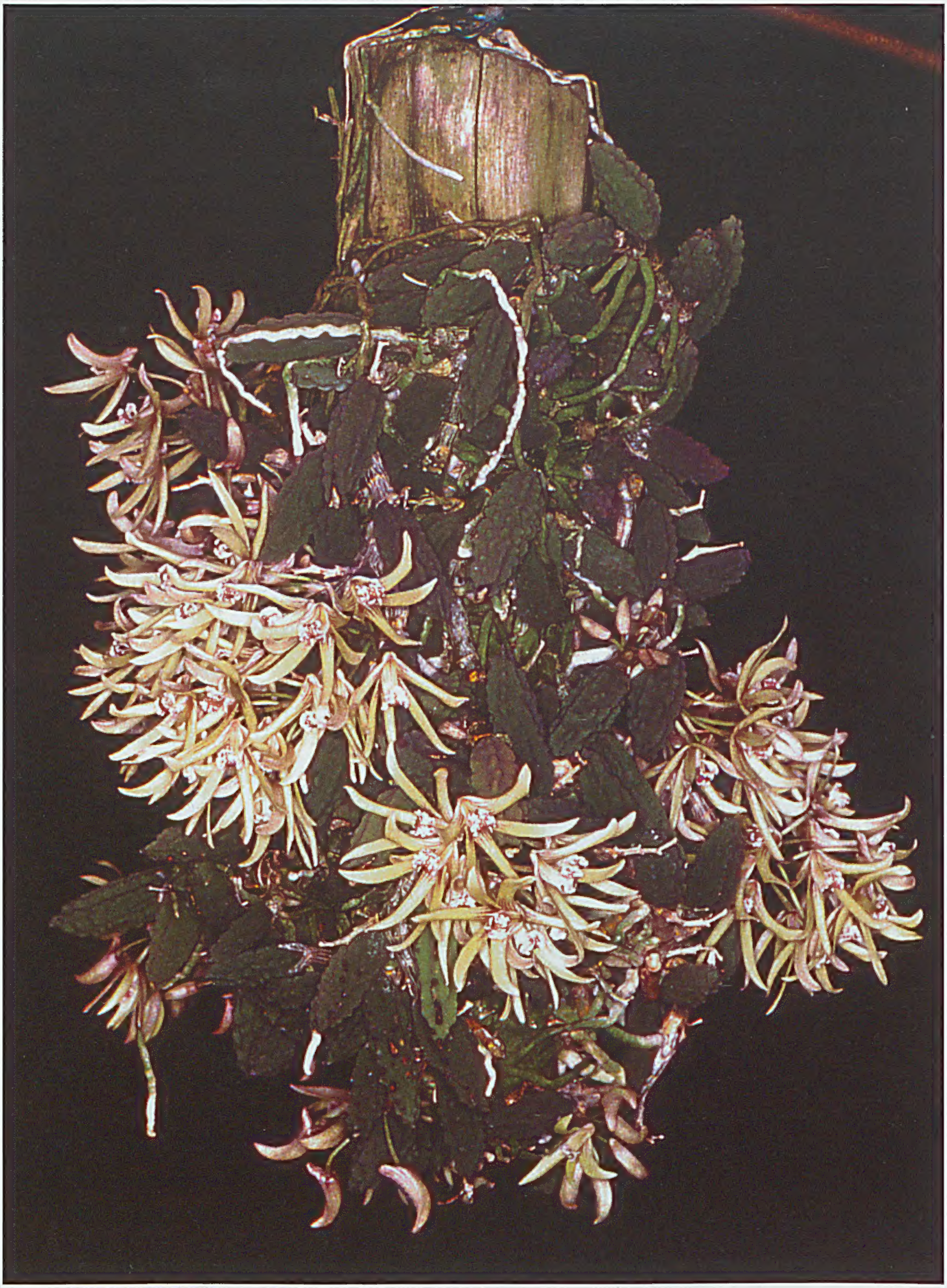
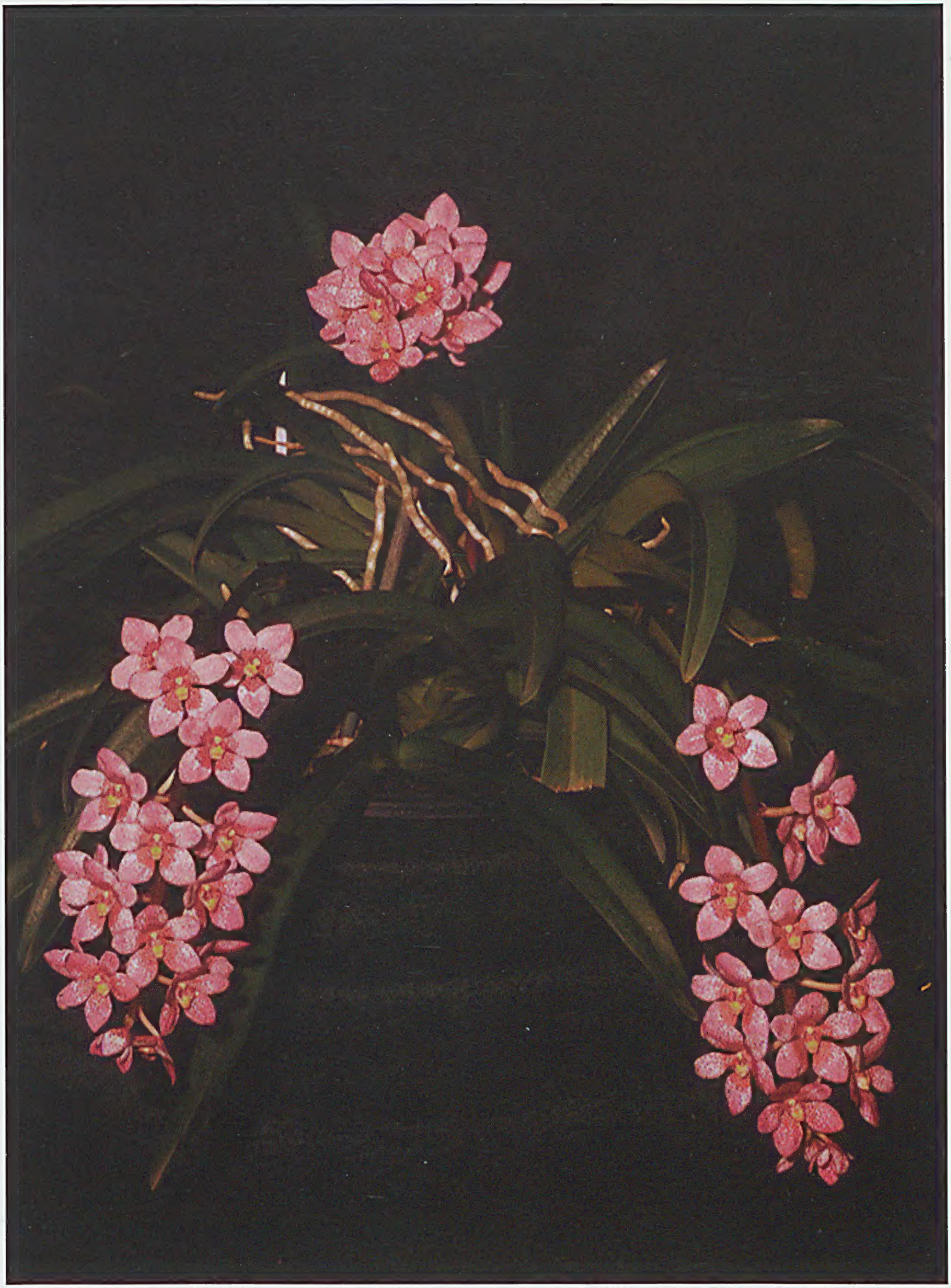


*Dockrillia cucumerina* 'Margaret' AM-ACC/AOC-NSW
Grower Fred Fear

Photo Garrie Bromley



*Sarcochilus* Heidi 'Albert Brown'
Grower Brian Gerhard, Down Under Native Orchids Photo David Titmuss

## Ira Butler Trophies for 2004

Roslyn Capell
Hon. Secretary, I.B.T.C.
P.O. Box 899
Willoughby, NSW 2068

### THE WINNER OF THE GOLD IRA BUTLER TROPHY - 2004 for the Champion Australian Native Orchid Hybrid of the Year is *Sarcochilus* Heidi 'Albert Brown'

This lovely orchid is owned by Down Under Native Orchids. It was Champion Australian Native Hybrid at the ANOS Sydney Group Sarcanthinae Show in October. The plant had three inflorescences averaging sixteen flowers each. The flat, well filled in flowers were mid pink in colour with a red centre, and well displayed.

The breeder of this particular plant is, unfortunately, not known. *Sarcochilus* Heidi is *Sarcochilus* Fitzhart x *Sarcochilus hartmannii* and the grex was registered by David Banks in 1983.

Of the thirty three nominations, twenty were from State or AOC or OSCOV affiliated Societies, eight were from ANOS Groups, one from NOSSA, one from the Native Orchid Society of Toowoomba, and three were eligible by reason of having received quality awards.

The following ten "runners up" will receive **Silver Ira Butler Trophies**:

- *Cymbidium* Kuranda 'Sue Gee' HCC-ACC/AOC (2003) - Graham & Sue Zerbe
- *Dendrobium* Tyabb 'Heather' AM/OSCOV (2004) - Philip Grech (hybridist: Wayne Turville)
- *Dendrobium* Yondi Glow x *Dendrobium falcorostrum* - Norm & Kay Mitchell (hybridist: Sid Batchelor)
- *Dendrobium* Jayden 'Sheen' AM/OSCOV - Barry Khann (hybridist: W.T. Upton)
- *Dendrobium* Kayla 'Longlast' - Henk van den Berg (hybridist: Col Brandon)
- *Dendrobium* Our Native 'Pacific Glory' HCC/ANOS (2004) - Fred Fear (hybridist: Pacific Orchids)
- *Dendrobium* Lochiel - Henk van den Berg (Hybridist: Neville Roper)
- *Pterostylis* Hoodwink - Les Nesbitt (hybridist: L. & M. Nesbitt)
- *Sarcochilus* Burgundy-on-Ice 'Strawberry Whip'- F. & H. Vernon (hybridist: D.U.N.O.)
- *Sarcochilus* Tigress - F. & H. Vernon (hybridist: Simpson Orchids)

The following will receive **Ira Butler Certificates**:

- *Dendrobium* Anne's Rainbow Surprise - David Cammack
- *Dendrobium* Aussie Child 'Wilcherry' - Roger & Pauline Rankin
- *Dendrobium* Aussie Quest 'Athol's' - Athol Rosenberg
- *Dendrobium* Cam-Ranh 'Emjay' - Paul Wheeler
- *Dendrobium* Cherub 'Bernice' HCC/AOC-QOS (2004) - Graham Markrow
- *Dendrobium* Colonial Surprise x *Dendrobium* (Bicentennial Blush 'Stunning' x Gulginni) - Alex & Christine Canala
- *Dendrobium* Cracker - Norm & Kay Mitchell

- *Dendrobium* Deemac - F. & H. Vernon
- *Dendrobium* Gillieston Pearl x *Dendrobium* Hamilton 'Lance' - Keith Buxton
- *Dendrobium* Gillieston Stardust 'Kimmie' HCC/OSCOV (2004) - B. & B. Khann
- *Dendrobium* Kayla - David Butler
- *Dendrobium* Kayla 'Old Gold' - Dennis Wood
- *Dendrobium* Kayla 'Old Gold' - Dennis Wood (eligible for two nominations because Champion of two different shows)
- *Dendrobium* Lisa Turner - G. & L. Spear
- *Dendrobium* (*speciosum* x Tarean) 'Goldie' - Philip Grech
- *Dendrobium* (Burgundy Cream x Jesmond Gem) - L. Mountford
- *Dendrobium* MacBride 'Burgundy Ice' x *Dendrobium* Cobber 'Yibbidy Ya Ya' - Emil Dallmer
- *Dendrobium* Rutherford Blushing Bride x *Dendrobium* (June Mac x Aussie Quest) - I. & J. Morschel
- *Dendrobium* (Bicentennial Rose x Ku-Ring-Gai) 'Robin' - B. & C. Wessely
- *Dendrobium* Star of Riverdene - J. & L. Hateley
- *Sarcochilus* (Elise x *hartmannii* ) # 2 - F. & H. Vernon
- *Sarcochilus* First Light 'Butterscotch' - Down Under Native Orchids

**THE WINNER OF THE BILL MURDOCH TROPHY - 2004**
for the **Champion Australian Native Orchid Species of the Year** is
***Dockrillia cucumerina* 'Margaret' AM-ACC/AOC-NSW**

This magnificent plant, owned by **Fred Fear**, was granted an Award of Merit and Award of Cultural Commendation by the Orchid Society of New South Wales and Australian Orchid Council on 24 November 2003.

The Committee was very impressed by two other nominations, and determined they were both worthy of **Certificates of Special Recognition**. They are ***Dendrobium bigibbum* var. *superbum* 'Samantha' HCC/QOS (2004**) owned by **Ross & Rhonda Harvey** and bred by **David Littman**, and ***Dendrobium speciosum* var. *curvicaule* 'Misty Mountain'** owned by **Lorraine & Bill Dobson**.

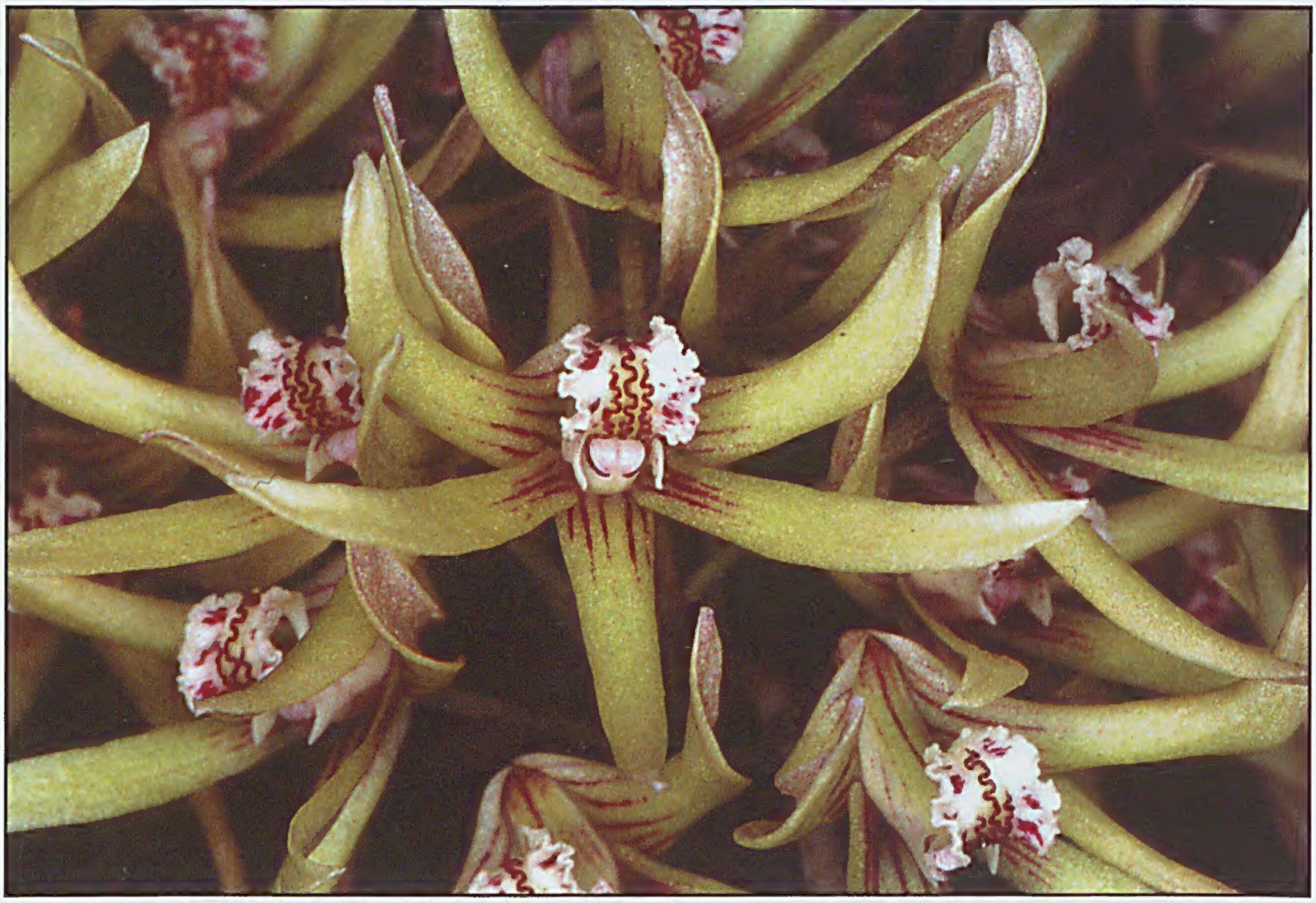
Of the thirty nominations this year, nine were known to have been line bred. Fifteen were from State or AOC or OSCOV affiliated societies, nine were from ANOS groups including the Campbelltown Conference, two from NOSSA, one from the Native Orchid Society of Toowoomba, and four eligible by reason of having received quality awards during the relevant period.

Again the vast majority of nominated plants were dendrobiums.

The following will receive Bill Murdoch Certificates:

- *Caladenia latifolia* - Nesbitt's Orchids
- *Cymbidium canaliculatum* 'Stanley Timothy' - Bruce Allan Truloff
- *Dendrobium discolor* var. *broomfieldii* 'Steve's Choice' HCC/AOC-QOS (2004) - Bruce Allan Truloff
- *Dendrobium discolor* var. *broomfieldii* 'Patricia' HCC/AOC-NSW (2004) - K. & P. Greenwood
- *Dendrobium kingianum* 'Kings Park' - HCC/AOC (2004) - Michael Muzslai

- *Dendrobium kingianum* 'Rose Anne' - Ros & Tom Fitzgerald
- *Dendrobium lithocola* - Graeme & Maureen Hazledine
- *Dendrobium speciosum* - Malcolm Tiggerman
- *Dendrobium speciosum* 'Ben' - Anthony Woodbine
- *Dendrobium speciosum* 'Kate's Special' - Peter Gibson
- *Dendrobium speciosum* ('John Lynch' x 'Windermere') - Dennis Wood
- *Dendrobium speciosum* 'Watellow' x *Dendrobium speciosum* var. *curvicaule* 'Daylight Moon' - Andrew Perkins
- *Dendrobium speciosum* var. *curvicaule* 'Clarrie' - Clarence & Beryl Wuth
- *Dendrobium speciosum* var. *speciosum* 'Heather' - Ron & Heather Campbell
- *Dendrobium speciosum* var. *speciosum* 'Windermere' - Norm & Kay Mitchell
- *Dendrobium teretifolium* 'Mem. John McKay' HCC/OSCOV (2004) - Philip Grech
- *Diuris maculata* 'Audree' AM/ANOS (2004) - Alan Dash
- *Liparis reflexa* - Mr W. Clark
- *Dockrillia striolata* 'Ruffles' HCC/ANOS (1992) - Down Under Native Orchids
- *Dockrillia teretifolia* var. *fairfaxii* - Wally Walloscheck
- *Dockrillia teretifolia* - F. & H. Vernon
- *Dockrillia nugentii* 'Jeffrey' AM/ANOS (1998), AM/AOC-NSW (2002) - Fred Fear
- *Phalaenopsis amabilis* 'Annette' - Annette & Peter Stubbs
- *Pterostylis curta* - Nita Wheeler
- *Pterostylis curta* - Bill & Ruth Clark
- *Pterostylis robusta* - Nesbitt's Orchids
- *Sarcochilus hartmannii* 'Kerrilly' - Down Under Native Orchids



*Dockrillia cucumerina* 'Margaret' AM-ACC/AOC-NSW (close up) Photo Garrie Bromley
Grower Fred Fear

# Twig Epiphytes of Australia

Michael Harrison
68 Howes Road
Wilberforce NSW 2756
Email mwharrison@ozemail.com.au

Within the Australian orchid flora, the twig epiphytes are an interesting group of species in terms of their adaptation to a specialised habitat, and the survival techniques they employ. Essentially, the twig epiphytes have evolved to exploit an environmental niche that is largely unavailable to other epiphytic species. They are small, lightweight plants that are able to colonise the slender, twiggy parts of the host tree, right down to thin diameters of just a few millimetres. A number of species will also germinate and grow on dead wood, a behaviour definitely avoided by typical, larger epiphytes. In such situations, these species lead high-risk lives, but not only do they exist, they thrive, at times forming colonies of many hundreds of plants. In short, they are a most successful group of orchids.

Many of Australia's twig epiphytes are members of subtribe Sarcanthinae or colloquially sarcanths, and this adaptation appears to represent a major line of evolutionary development within this group of orchids. Certainly, there are other groups where a few species have adopted this lifestyle, at least optionally, but most of the true twig epiphytes are small to medium sized sarcanths.

Like most of Australia's epiphytic orchids, the twig epiphytes are basically rainforest plants. They grow on rainforest trees in various situations and habitats, with each species having its own range of ecological requirements and restraints. As well as occurring in typical rainforest situations, many twig epiphytes inhabit so-called "dry scrub" rainforest, a generic term describing a depauperate closed forest community with a relatively low canopy and a reduced variety of tree species. These dry scrubs vary in their structure and species make-up from place to place, but they generally occur in lower rainfall areas (in rain shadows or monsoon affected regions), and/or on poorer soils, and often on steep hillsides. They also occur as "patches" of rainforest in protected gullies or on rocky hillsides or knobs. These are often good places to see epiphytic orchids, and not just necessarily twig epiphytes, for they grow closer to ground level, due to the lower canopy, and are easier to spot. Even so, twig epiphytes may be initially difficult to locate because of their small size and cryptic nature, and often the first thing to be noticed are orchid roots snaking along a thin branch. These roots can then be traced along to the leaves, sometimes a metre or more away, and the plant appreciated in its entirety. The same species, when occurring in typical tall rainforest, will inhabit the upper canopy, 25-30 m above the ground, and will be impossible to see from the forest floor.

Another favoured situation for twig epiphytes is on rainforest margins, or in places where the canopy has been broken, and thus extra light is allowed to penetrate. Cliff lines, watercourses and roadways all create such opportunities. Relatively small patches of gallery forest may support large colonies, and occasional trees on rainforest margins or in sheltered gullies may support dozens of plants. At times it is difficult to understand why such colonies have become established in relatively small areas, whilst apparently identical habitats in close proximity remain uncolonised. The vagaries of nature make it impossible to quantify precisely, but such factors as topography, altitude, aspect, temperature differentials, air flow patterns, and light and humidity levels all play their part in determining the suitability of a particular habitat, at both the macro- and micro-environment levels. One observation to be made is that colonies of some twig epiphytes often grow in mist zones, where low cloud frequently envelops mountaintops, or regularly flows up mountainsides or across a saddle on a ridge. Such spots are generally festooned with colonies of epiphytic moss, its presence a lush reminder of the cool, humid atmosphere that prevails in such places.

The ecological advantage enjoyed by twig epiphytes is, of course, the capacity to colonise situations where competition from other epiphytes is low. On the outermost twigs, few other epiphytic species are encountered, and those that are present are similarly small and lightweight. Epiphytic mosses and lichens present the main competition, especially in high rainfall areas, and although there are no doubt times when mosses overwhelm and smother orchids, they mostly co-exist in relative harmony, and in many cases, no doubt, the orchids appreciate the extra moisture and coolness provided by the moss. However, should the bio-mass exceed the weight-bearing capacity of the limb, then the combined load will bring it down, so there is a definite limit.

All epiphytic plants lead insecure existences, dependant as they are upon the well being of the host tree, and with climate and prevailing weather conditions combining at times to create added stresses. Twig epiphytes in particular face even greater uncertainties, for the thin branches and twigs upon which they perch are susceptible to a number of damaging agents. Birds and arboreal animals commonly break off the outer limbs of trees, especially if they are dead and brittle, and any plants growing on these limbs quickly perish once they reach the forest floor. Heavy storms and high winds also take their toll, as do falling branches from higher in the canopy.

To overcome these problems, twig epiphytes have evolved certain strategies to ensure their survival. For these species, the emphasis is not upon the individual but upon the species as a whole. The trade-off for reduced competition out on the twiggy branchlets is the precariousness of such situations, and to counter the resulting high mortality rate, the twig epiphytes are especially fertile, high germination, fast maturing species. In general, most twig epiphytes produce large amounts of seed, which germinates freely, and at times literally hundreds of developing protocorms may be seen on host branches. Seedlings grow to flowering size quickly, often producing their first blooms within two or three years of germination, and it is not uncommon to see a developing seed capsule on a juvenile plant in its first flowering season. Thus, there is a rapid generational turnover.

This strategy is well suited to small-growing, low mass plants. Much less energy is required to produce a flowering sized plant of, say, *Sarcochilus australis*, than *Dendrobium speciosum*, which may take 10 years or more to reach flowering size. Many more individual plants can be produced in a much shorter time, so that the strength of these species lies in mass production, rather than a much greater investment in fewer, larger plants. This tactic allows these species to take advantage of a marginal ecological niche that is simply unavailable to heavier, slower growing species. As long as a fresh generation can be produced every two or three years, it doesn't really matter that individuals are lost on a regular, even frequent basis, for they are being easily and quickly replaced.

The capacity of many species of twig epiphytes to rapidly increase their numbers during periods of favourable conditions, no doubt accounts in part for their success. With Australia constantly influenced by the El Nino Southern Oscillation, and the resulting fluctuations in weather, usually in two to seven year cycles, any species that is able to grow to reproductive size quickly will have an advantage. Periods of drought, particularly if prolonged, may adversely affect population numbers, but when suitable conditions return, numbers build up again within a couple of years. This is at odds with the larger, slower-growing species, where the period from germination to flowering size is much longer. Such population dynamics explain why colonies of some species advance and decline quite dramatically over relatively short periods of time, for although these processes affect all species to a certain extent, twig epiphytes are especially fluid. This fast reproductive rate and generational turnover would also presumably make these species more readily adaptable to long-term environmental changes, such as global warming or cooling.

Because many twig epiphytes are so often seen as relatively small, apparently young plants, it has been suggested that these species have a naturally short life span. This, however, is not the case, for large specimen plants are encountered from time to time, growing not on the twiggy parts of the host, along with the vast majority of their brethren, but on a main limb not liable to die-back or being easily broken off. Such plants mature into large specimens simply because they are able to do so, by virtue of the long-term security and stability provided by that part of the host upon which they are growing. Even those individuals that establish themselves on slender, more typical branches will grow into large, mature plants as long as the host limb remains viable for long enough, for although these species reach reproductive size quite quickly, it still probably takes ten or more years for them to reach their full vegetative potential, even under ideal conditions. It is therefore true that twig epiphytes are indeed often short-lived plants, but this is due to their high-risk lifestyle, not because they genetically engineered to be so.

Many twig epiphytes within subtribe Sarcanthinae aerialise some or many of their roots, a strategy that gives these plants a good chance of surviving dislodgement from their host. Aerial roots are no different from the regular roots of the plant, except that instead of attaching to the host limb, they extend out into mid-air, at times growing into a tangled mass. Like normal roots, they remain able to absorb water and nutrients. Often these aerial roots attach themselves elsewhere on the host, or even at times onto a different host, giving the plant one or more separate points of attachment, and thus an increased level of security, for even if the primary host limb is broken off, the plant may well be saved from falling. And, even when aerial roots have been unable to find extra footholds, by their very nature they give the plant a much greater chance of snagging an alternate host limb during freefall. Indeed, it is quite common to find such plants, hanging awkwardly on a branch or in a shrub, clearly having fallen from higher up, and often with a portion of the original host twig still in tow. As long as they do not fall all the way to the forest floor, such plants will usually have no trouble in re-attaching to their new host, and will survive.

The twig epiphytes may be arbitrarily divided into two groups, the obligate twig epiphytes and the optional twig epiphytes. The first group, the obligates, consists of those species that have evolved specifically to grow in this manner. These are the “true” twig epiphytes, dedicated to this habit, and it is their normal and almost exclusive nature to grow in this manner, on the very outermost branchlets and twigs of the host tree, and although occasional plants may be seen on larger limbs, this is atypical and unusual. The majority of these species are members of subtribe Sarcanthinae, although there is one *Dendrobium* and one *Bulbophyllum*.

The second group, the optional twig epiphytes, contains those species that are commonly seen growing as twig epiphytes, but which are by no means restricted to this habit, and they just as often occur as typical epiphytes on the more substantial parts of the host, such as the trunk or main limbs, and may even occur as lithophytes.

## The Obligate Twig Epiphytes

***Sarcochilus australis*** (Lindley) H.G. Reichb.
This medium sized sarcanth occurs as a typical twig epiphyte in sheltered gullies and along watercourses, where it colonises a number of host species. It prefers fairly open, airy situations in moderate light levels, and generally avoids rainforest proper.

*S. australis* has a wide distribution from north-eastern Tasmania, and along the east coasts of Victoria and New South Wales. It has also been reported from south-eastern Queensland, where it is apparently rare. In the southern two-thirds of its range *S. australis* occurs at low to moderate altitudes, often quite close to the coast, but north of the Hunter River it is restricted to higher elevations and becomes much less common.

In favourable situations, *S. australis* forms colonies of hundreds of plants, with most growing on twigs and small limbs up to 10 mm in diameter. Occasional individuals may also be seen on thicker branches, and it is these plants that survive to grow into large, sometimes multi-headed specimens. A highly perfumed species, *S. australis* blooms in spring, and on mature plants the inflorescences may reach 150 mm in length and carry a dozen or more 25 mm tall flowers, which are usually green with a white, purple striped labellum. It has proven to be a difficult species to cultivate for more than a couple of years.

***Sarcochilus spathulatus*** R.Rogers
Superficially similar to *S. australis*, although with distinct differences in floral morphology, *S. spathulatus* is a rainforest epiphyte that occurs from the Watagan Mountains, just south of Newcastle, along the coastal ranges of New South Wales and into southern Queensland, where it reaches its northern limit around Kenilworth. It also grows on the Bunya Mountains, north-west of Toowoomba.

*S. spathulatus* is usually seen in rainforest in low to moderate light on the outermost branches of trees and shrubs, commonly within a metre or two of the ground. The lower limbs of the hoop pine are a favoured position. It also grows high in the upper canopy, where it is impossible to spot from ground level. Like *S. australis*, it regularly germinates and grows on dead twigs, and it is not uncommon to find a mass of plants growing amongst broken limbs caught up in the lower branches of a host. Good colonies are often seen in mist zones, where plants grow in the epiphytic mosses that are a feature of these environments. *S. spathulatus* typically aerialises many of its roots.

*S. spathulatus* blooms in the spring. It is usually somewhat of a progressive flowerer, with the older flowers beginning to fade whilst the distal buds have yet to open. A large plant may carry up to eight flowers per inflorescence, with each flower 12-15 mm tall. They vary in colour from bright green, through khaki and tan, to chocolate brown. The labellum is white with a yellow chin and it usually carries some purple markings. It is a fairly difficult species to grow in cultivation.

***Sarcochilus hillii*** (F. Muell.) F. Muell.
This small epiphyte is common in many places throughout its range, and individual host trees may well support scores of plants. It is distributed from south-eastern New South Wales to at least as far north as the Calliope Range, inland from Gladstone in Queensland.

*S. hillii* carries narrow, fleshy, channelled, grey-green leaves, and it will tolerate brighter, drier conditions than many of its relatives. It often grows in quite exposed positions, although it also regularly occurs in damp, shady gullies and in typical rainforest situations. Dry rainforest associations seem to suit it best.

This is a progressively flowering species that produces bursts of two or three flowers per inflorescence every week or two during the summer months. The widely opening flowers are white, with a distinctive crystalline texture, and are up to 10 mm in diameter. It usually performs reasonably well in cultivation.

***Sarcochilus minutiflos*** Bailey
This essentially tropical species is closely related to *S. hillii*, being vegetatively identical and florally similar to that species. However, *S. minutiflos* has more triangular-shaped flowers that do not open as widely as *S. hillii*. There are also differences in the structure of the labellum.

*S. minutiflos* occurs from around Gladstone, where its distribution just overlaps with *S. hillii*, northwards to Princess Charlotte Bay on Cape York Peninsula. It tends to avoid wet, closed forests, preferring open, fairly bright situations, often in dry rainforest. It grows on the outermost braches and twigs of trees, and on shrubs, often within a metre or two of the ground.

Like *S. hillii*, this is a progressively, summer flowering species, and it is usually fairly reliable in cultivation. It is often known under its old name of *S. tricalliatus*.

***Sarcochilus dilatatus*** F. Muell.
Dry rainforest associations are the preferred habitat for this species, and it shuns excessively damp, shaded situations, often growing on the lower limbs of trees on rainforest margins or in areas with moderate sub-canopy light penetration. It is commonly seen on the lower limbs hoop pines, even sometimes in plantations.

*S. dilatatus* is distributed from the far north-eastern corner of New South Wales and into Queensland to at least as far north as the Calliope Range, inland from Gladstone. It generally grows at low to moderate elevations, but usually not close to the coast, and in some places it forms large colonies of hundreds of plants.

This is a spring flowering species that carries up to ten flowers per inflorescence, but commonly only four to six. The flowers are between 10-20 mm tall; flower colour ranges from khaki, through tan to chocolate brown. The white labellum carries yellow and brown markings. This species is a difficult prospect in cultivation.

***Sarcochilus serrulatus*** D.Jones
This highland rainforest and cloud forest species from far north Queensland grows on trees in high rainfall areas, frequently along creeks and watercourses, and usually in fairly heavy shade. It is not uncommonly seen hanging in drifts of epiphytic moss, somewhat in the manner of *S. spathulatus*.

The leaves on *S. serrulatus* are bright apple green in colour, up to 100 mm long and the margins are minutely serrulate in their distal potions. The relatively short inflorescences carry between three and eight 15 mm tall flowers. The flowers are red-brown in colour and the labellum is white with brown barring. *S. serrulatus* flowers in the spring.

*S. serrulatus* has a restricted distribution on and around the Atherton Tableland, and is generally uncommon, for although, like most of its relatives, it tends to be a colony forming species, it does not produce high-density populations. It has proven to be a difficult species to grow in cultivation for any length of time.

***Sarcochilus hirticalcar*** (Dockr.)
M.Clements & B.Wallace
This rare species from the McIlwraith Range on Cape York Peninsula is known from just a small number of creek systems, where it forms low density colonies growing on trees and vines, usually close to water. It grows on a number of hosts, including hoop pine, generally in moderate shade at altitudes between 300 and 600 m.

Vegetatively, *S. hirticalcar* resembles *S. falcatus*. The falcate leaves are up to 100 mm long and 15 mm wide. This is a progressively flowering species that blooms over several months during spring and summer. Usually only two or three flowers are open at once, although over the course of a flowering season up to a dozen and a half flowers may be produced as the inflorescence extends. The flowers have a distinctive colour scheme, yellow with a band of russet red around the centre of the flower, and the labellum has a prominent, protruding chin. It usually grows well in cultivation, although it requires minimum wintertime temperatures of no less than 12°C.

***Plectorrhiza tridentata*** (Lindley) Dockr.
This very common species has a wide distribution from south-eastern Victoria to far north Queensland. Over most of its range it occurs from near sea level to high on the ranges, although in north Queensland it is restricted to mountainous areas inland from the coast.

*P. tridentata* produces long stems with persistent, widely separated leaves. It is renowned for aerialising many of its roots, and is commonly known as the "tangle-root" orchid. It is a spring flowering species, producing small, highly perfumed green to dark brown flowers, up to 12 mm tall.

A very adaptable species, *P. tridentata* may be found in dense rainforest, through to wet sclerophyll forest in fairly open situations, though usually in heavy shade. It is usually an easy species to grow.

***Plectorrhiza brevilabris*** (F. Muell.) Dockr.
The distribution of this orchid extends from Noosa, in south-eastern Queensland, to the McIlwraith Range on Cape York Peninsula. In the southern part of its range it grows in the lowlands, but in north Queensland it is restricted to higher elevations.

Similar in vegetative habit to *P. tridentata*, *P. brevilabris* produces long stems with widely separated leaves. The inflorescences are up to 150 mm long and carry as many as twenty flowers. The flowers are up to 20 mm tall and are green or pale brownish yellow, usually with some darker brown markings on the floral segments. The labellum carries a distinctive long, slender, downwards pointing spur. It usually flowers in the summer. It is generally a reliable species in cultivation.

*P. brevilabris* is a rainforest species and is common in many areas. It grows on trees and shrubs, and like *S. dilatatus*, it often colonises plantation hoop pine.

***Papillilabium beckleri*** (F. Muell. ex Benth.)
One of the smaller epiphytic sarcanths in Australia, *P. beckleri* typically grows on very slim twigs on trees overhanging creeks and streams, although at times it may be seen on trees in sheltered, shady spots on hillsides. It is not uncommon to find this species on small broken twigs hanging in masses of epiphytic moss beside watercourses. Generally speaking, it prefers wet forest situations.

Its small, highly perfumed flowers are carried in a spiral arrangement on the inflorescence, and are produced in spring. They are white, green and purple in colour and about 8 mm tall. *P. beckleri* is an abundant species in some places but may be hard to locate because of its small size and discreet habit. It is distributed from the Illawarra district of New South Wales to south-eastern Queensland and occurs from near sea level to moderate elevations on the ranges. It is often somewhat touchy in cultivation.

***Schistotylus purpuratus*** (Rupp) Dockr.
This is another small sarcanth, similar to *P. beckleri* in appearance, although with grey-green foliage, and frequently with small, reddish spots on the leaves. It grows on the very smallest of twigs on rainforest trees and shrubs, and is distributed from around the Comboyne Plateau in New South Wales northwards into southern Queensland. It occurs at moderate to high altitudes, usually well inland from the coast.

*S. purpuratus* is an uncommon species,

but where colonies exist there may be hundreds of plants in a relatively small area. It grows in drier, more open situations than *P. beckleri*, and it tends to avoid rainforest proper, preferring situations where light levels are higher. It blooms in the spring, and inflorescences carry up to eight green, white and purple fragrant flowers about 5 mm tall. It is not an easy species to grow in cultivation.

***Drymoanthus minutus*** Nicholls
This miniature orchid grows on the outermost twigs of rainforest trees in north Queensland, and is often seen within accumulations of broken twigs and mosses that hang from lower tree limbs just a metre or two above the ground. It also grows on shrubs and small trees near or overhanging creeks and rivers.

The distribution of *D. minutus* extends from the Paluma Range, north of Townsville, to Cairns, and it occurs from fairly low altitudes to moderately high elevations on the tablelands. Invariably, it grows in wet forest situations, often near creeks and rivers, and usually in heavy shade.

The leaves on this species are rarely longer than 20 mm and are about 5 mm wide. The short inflorescences carry up to seven or eight tiny flowers that are no taller than 3 mm. The flowers are green with a fleshy white labellum. The flowering season is summer. *D. minutus* usually grows fairly well in cultivation.

***Saccolabiopsis armitii*** (F. Muell.) Dockr.
This tropical species has a wide distribution from at least as far south as the Calliope Range, inland from Gladstone, almost to the top of Cape York Peninsula. It is an adaptable species that grows in a variety of situations, but it avoids wet, closed forests, preferring instead more open, drier habitats.

*S. armitii* grows on the outermost limbs of trees on rainforest margins, or in areas of dry scrub rainforest, where the canopy is low and there are reasonable levels of light. This species does not like heavy shade, and in some areas on Cape York Peninsula it colonises small trees in monsoon scrub on rocky hillsides, where during the dry season the light penetration is quite strong. In such situations the plants' leaves become almost pink/purple in colour.

The flowers on *S. armitii* are small, only about 5-6 mm tall, although the pendulous inflorescences may reach up to 90 mm in length and carry up to fifty flowers. This is a progressively flowering species, and usually no more than one-third of the flowers are open at once. The flowers are yellow with a white lip and a bright red pollen cap. It flowers in spring and summer and usually grows well in cultivation.

***Saccolabiopsis rectifolia*** (Dockr.) Garay
A rare species apparently known from just one area on the eastern side of the Atherton Tableland, *S. rectifolia* grows at fairly low altitudes in wet forest in heavy shade. It is a miniature orchid, virtually unknown in cultivation. In overall size, *S. rectifolia* is similar to *Drymoanthus minutus*, although it leaves are less fleshy and a paler green in colour, and the inflorescences are considerably longer, up to 70 mm The small, pale green flowers are only about 5 mm tall. It flowers in late winter and spring.

***Schoenorchis sarcophylla*** Schltr.
A rare species known from just a couple of locations on Cape York Peninsula, *S. sarcophylla* is a small twig epiphyte that colonises the outermost branches of trees in rainforest overhanging creeks. In one place it has also been seen growing on shrubs on a hillside, some distance from water and in brighter light. This species produces fairly narrow, fleshy leaves, and tiny, bell-shaped, white flowers on branching inflorescences. It is seldom seen in cultivation.

***Dendrobium carrii*** Rupp & C.White
Whilst most *Dendrobium* species will at times germinate and grow on slender limbs, it is not their usual habit to do so, and many

such plants fail to thrive, or under their own increasing weight, fall to the ground before reaching flowering size. *D. carrii*, however, is designed to grow as a twig epiphyte (although it does not colonise the most slender twigs in the manner of the small sarcanths), and it typically grows on limbs of about 10–15 mm in diameter in the upper canopy of tall rainforest trees.

*D. carrii* is a north Queensland native, and is restricted to the wet tropics between Innisfail and Cooktown. It grows in high elevation rainforest and cloud forest, where in the upper canopy of tall trees it is exposed to constant strong air movement and bright light, alternating with cloud. High rainfall is a feature of its habitat, and the branches it colonises are also usually home to epiphytic mosses and lichens.

*D. carrii* has a creeping habit and usually branches extensively. Its 20 mm tall pseudobulbs each carry two leaves, and are widely spaced on a slender, wiry rhizome. The flowers are not widely opening, and are white or cream; the waxy labellum is yellow with a few red markings. It flowers in the spring and is generally not easy to grow in cultivation for extended periods.

### ***Bulbophyllum lilianiae*** Rendle

Many of the Australian *Bulbophyllum* species are equally at home on slender branches as they are on thicker limbs and tree trunks, but for one species, *B. lilianiae*, life as a twig epiphyte is the norm. Like *D. carrii*, *B. lilianiae* grows high in the canopy of tall rainforest and cloud forest trees, generally preferring limbs of 10–15 mm thickness. At times the two species grow together.

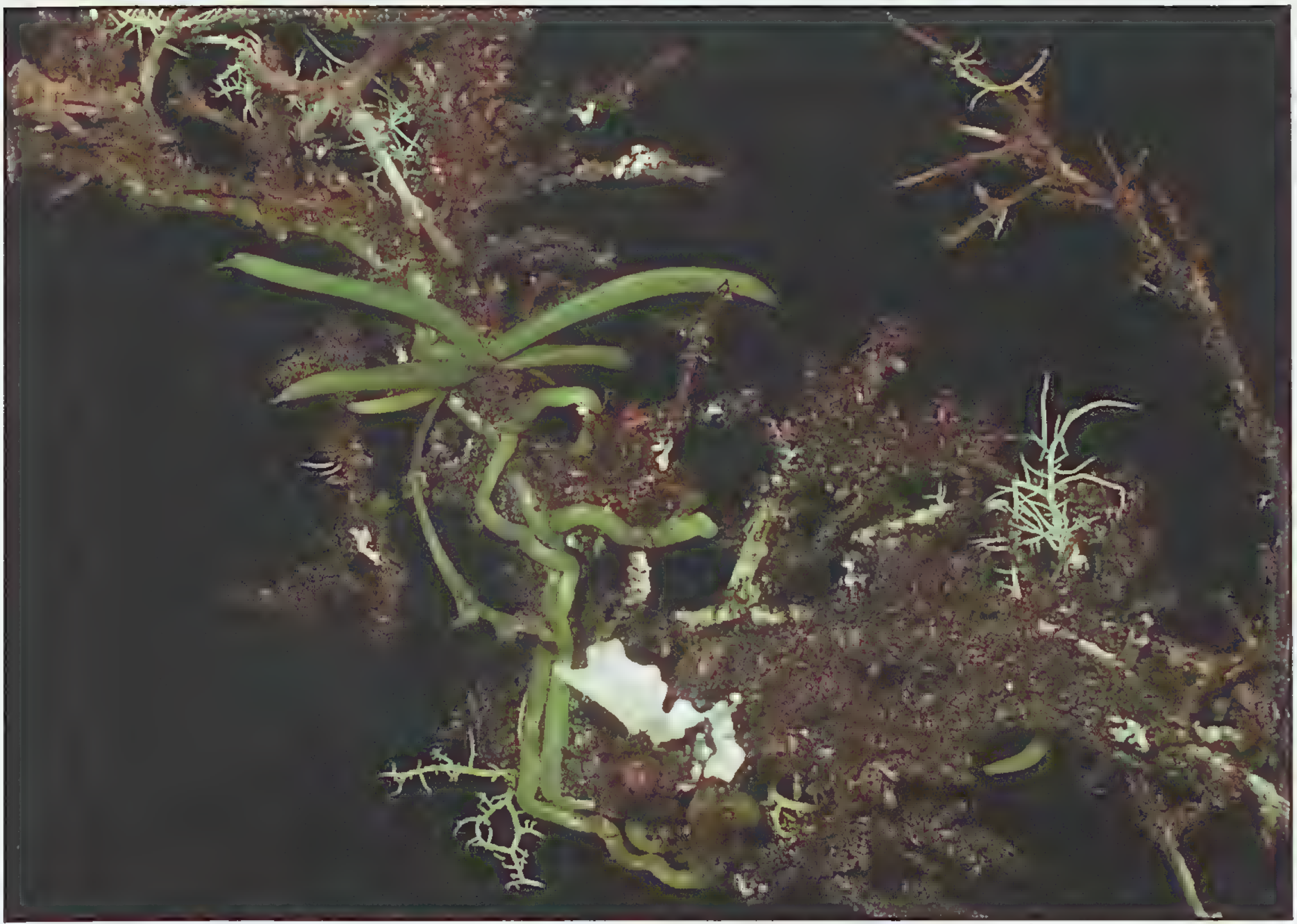
Its distribution is restricted to highland areas on and around the Atherton Tableland in the wet tropics, and is seldom seen below 1000 m altitude. These highland rainforests are constantly moist, and often dripping wet, and *B. lilianiae* is periodically exposed with bright light, alternating with heavy clouds and mists. Epiphytic mosses and lichens are abundant. *B. lilianiae* carries small, conical pseudobulbs about 10 mm tall, with a single, thin-textured leaf, and they are usually well spaced along thin, wiry rhizomes which form long strands along host branches. The inflorescences are upright and carry one or two greenish yellow flowers with red stripes. The labellum is red. This species is difficult to grow in cultivation.

### ***Taeniophyllum*** species

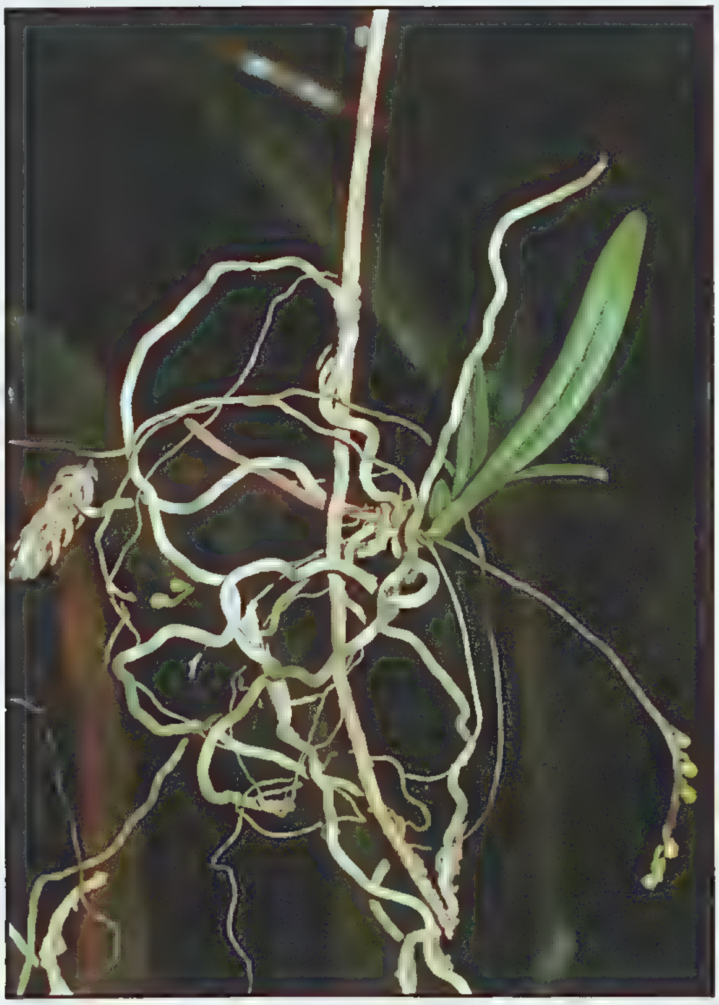
Members of this genus are seldom seen in cultivation due to difficulty of culture and their horticulturally unimpressive flowers. The *Taeniophyllum* species of Australia, of which there are currently five, are not well understood and are in need of further study. The five currently recognised Australian species are *T. confertum*, from the north Queensland wet tropics, *T. flavum*, from the Evelyn Tableland to the McIlwraith Range, *T. lobatum*, from the Paluma Range, between Townsville and Ingham, *T. malianum*, from Iron Range and McIlwraith Range on Cape York Peninsula, and *T. muelleri*, from far north-eastern New South Wales to the top of Cape York Peninsula.

These species produce unusual, slightly flattened roots, which contain chlorophyll for photosynthesis, and no leaves. The inflorescences arise from the centre of the plant, from the point at which the roots originate. The flowers are mostly inconspicuous and short lived. Most species grow as typical twig epiphytes, with their roots adhering tightly to the host limb. Sometimes quite large colonies of hundreds of plants are formed in a relatively small area in just one or two host trees.

Florally, our most impressive species is *T. malianum*. It grows on rainforest trees and shrubs, and aerialises the majority of its 200 mm long roots, and plants form untidy masses of pendulous roots, attached to the host by just a few. This species is a progressive flowerer, and only one or two flowers are open at one time. The creamy yellow flowers are relatively large for the genus. They are about 10 mm tall and open widely.



*Schistotylus purpuratus* in bud on a lichen encrusted twig, Dorrigo Plateau, New South Wales.



*Papillilabium beckleri* in bud, Dorrigo Plateau New South Wales. Note the very slender host twig and areial roots.

Warm temperate rainforest at Dove Mountain, Barrington Tops.

Photos Michael Harrison

## The Optional Twig Epiphytes

A considerable number of species could be included in this group, for even where the typical habit of many species is not that of a twig epiphyte, certain individuals will grow in that manner. However, for the purposes of this paper, only those species that are commonly seen growing as twig epiphytes will be discussed.

***Sarcochilus olivaceus*** Lindley
Widely distributed from the New South Wales south coast to the south-eastern corner of Queensland, *S. olivaceus* is a common and adaptable species found from near sea level to moderately high elevations. It often grows as a twig epiphyte in typical rainforest situations, especially on trees overhanging or close to watercourses. However, it also commonly grows on the main trunk and laterals of host trees, and in many places it may be seen as a lithophyte, growing on boulders and rocks on the rainforest floor in deep shade.

*S. olivaceus* is a moisture and shade loving species, which reaches its best development close to running water, and in such situations it may form high-density colonies of many hundreds of plants, often in association with epiphytic mosses.

A large plant of *S. olivaceus* may produce leaves up to 150 mm in length and 30 mm wide. Occasional plants may branch to form multi-headed specimens. The inflorescences are up to 150 mm long and carry as many as eighteen flowers. The flowers are green, with a paler green or yellowish green labellum variously marked with reddish brown barring. This species produces a distinctive and pleasant spicy or pine resin perfume. It flowers in spring and is easy to grow in cultivation.

***S. parviflorus*** Lindley
A close relative of *S. olivaceus*, *S. parviflorus* occurs in the very north-eastern part of New South Wales, and extends into south-eastern Queensland to at least as far north as the Calliope Range, inland from Gladstone. It is usually found in areas inland from the coast at moderate altitudes, and often in drier rainforest associations, as opposed to *S. olivaceus*, which usually grows close to water. It carries slightly smaller flowers than *S. olivaceus*, and they vary in colour from green through to brown, and often with combinations of the two. The labellum is white with horizontal red barring. It flowers in the spring and usually grows well in cultivation.

***Sarcochilus borealis*** (Nicholls) M.Clements& D.Jones
For many years *S. borealis* was considered to be a botanical variety of *S. olivaceus*, as var. *borealis*, but it now stands as a distinct species. It occurs in moderate to high altitude rainforest on the ranges and tablelands in north Queensland between Townsville and Cooktown.

*S. borealis* commonly grows on trees along creeks, usually in heavy shade and often overhanging water. It tends to be a smaller growing plant than *S. olivaceus*, and generally carries just three to five flowers per inflorescence, although as many as eight flowers may be carried on a robust plant. The flowers are green, often with a few brownish markings near the bases of the segments. The labellum is white, variously marked with red barring. This is usually a reliable species in cultivation.

A *S. olivaceus*-related taxon occurs around Eungella, inland from Mackay in central eastern Queensland. It may be referrable to either *S. borealis* or *S. parviflorus*, but further research is required to determine its affinities. This orchid occupies a slightly drier ecological niche than *S. borealis*, and tends to grow in more open situations, often away from watercourses.

***Thrixspermum congestum*** (Bailey) Dockr.
This tropical species grows at low altitudes, usually close to the coast, on the outer and uppermost limbs of trees in rainforest,

as well as on mangroves. It is distributed from Tully, in north Queensland, to the Iron Range area on Cape York Peninsula, and it has also been recorded from Melville Island, north of Darwin in the Northern Territory. It generally grows in situations of fairly bright light, and plants are often a yellowish green due to the light intensity.

*T. congestum* has an upright habit of growth and it usually aerialises many of its roots. The inflorescences are erect and the flowers are produced periodically from a terminal head of congested bracts. Usually only two or three flowers are open at once. The flowers are white and about 15 mm in diameter, and they last for less than a day. This species is somewhat touchy in cultivation, and in temperate areas a heated glasshouse is required during the winter.

***Tuberolabium papuanum*** (Schltr.) J.J. Wood

This medium sized sarcanth has a limited distribution, and is restricted to low to moderate altitudes between Innisfail and Cairns in north Queensland. It grows on the outermost limbs of rainforest trees, usually close to or overhanging creeks and rivers, in high rainfall areas. It flowers in summer and autumn.

This is a progressively flowering species, with short inflorescences that slowly elongate as more flowers are produced. Usually only two to four flowers are open at once on each inflorescence, and they last for only one day. The flowers are 5-6 mm tall and are creamy yellow with a fleshy white labellum. *T. papuanum* can be a little difficult in cultivation and a minimum winter temperature of 15° C is required.

***Bulbophyllum sladeanum*** A. Hawkes

This species is closely related to *B. macphersonii*, but is distinguished by its larger flowers and spathulate labellum. It also tends to grow on more slender limbs, typically colonising small branches of 10-15 mm diameter in the tree tops. Whilst *B. macphersonii* is also sometimes seen on thin limbs, it more commonly grows on thicker branches, and also on rocks, where it may form quite large mats, whereas *B. sladeanum* forms much smaller, more compact plants.

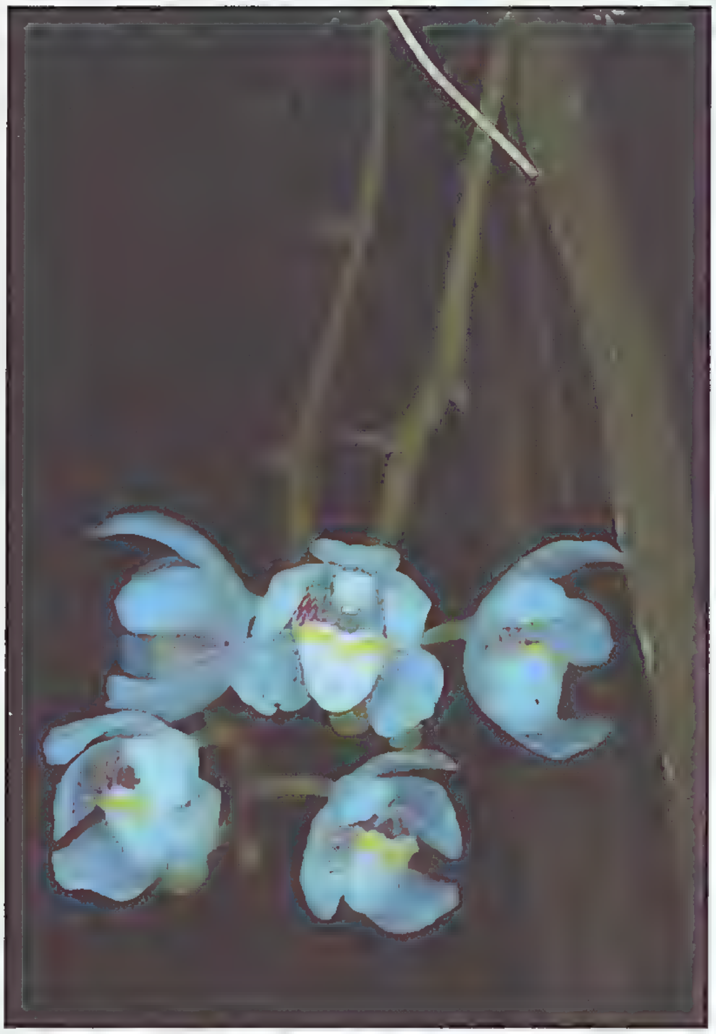
*B. sladeanum* grows in high elevation rainforests in north Queensland on and around the Atherton Tableland, and it is usually seen in fairly shady conditions. It is an autumn flowering species and produces multiple, single-flowered inflorescences about 30 mm tall. The flowers are up to 25 mm tall, widely opening, and dark purple in colour. Like *B. macphersonii*, it is an easy species to grow.

### Other *Bulbophyllum* Species

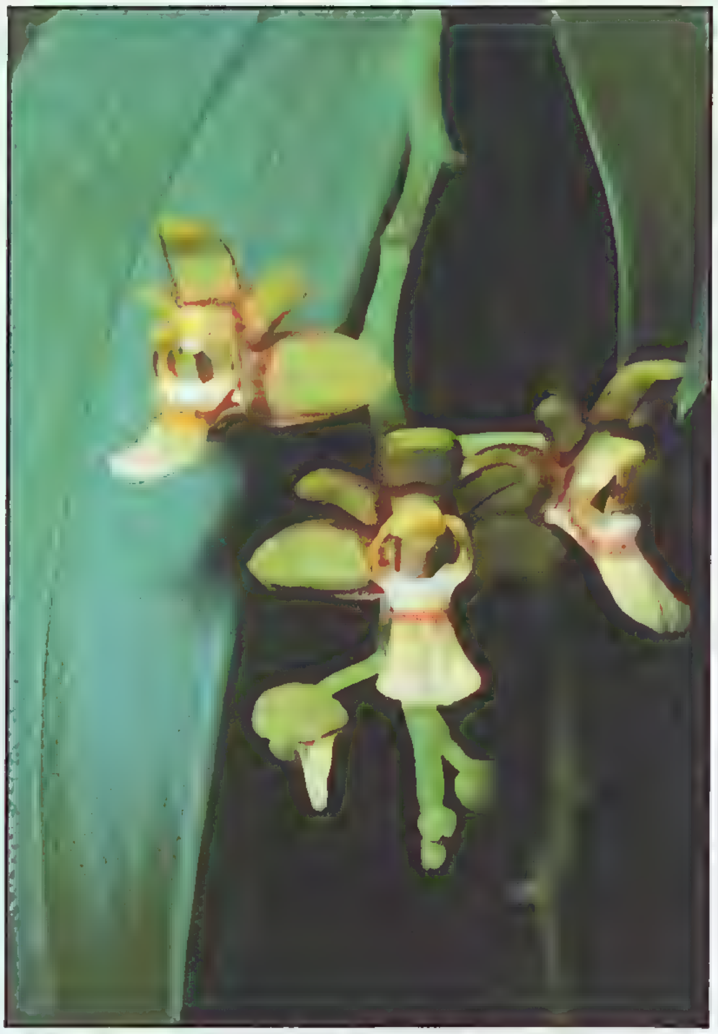
A number of *Bulbophyllum* species from high elevation rainforest and cloud forest in north Queensland could also be included as optional twig epiphytes, although they are more commonly seen growing on larger branches and trunks of host trees. These include: *B. macphersonii*, *B. lageniforme*, *B. boonjee*, *B. lewisense*, *B. windsorense*, *B. johnsonii* complex, *B. bowkettiae* and *B. woofei*. *B. argyropus* from north eastern New South Wales and south eastern Queensland, Lord Howe Island and Norfolk Island could also be included in this category.

### Cultivation of Twig Epiphytes

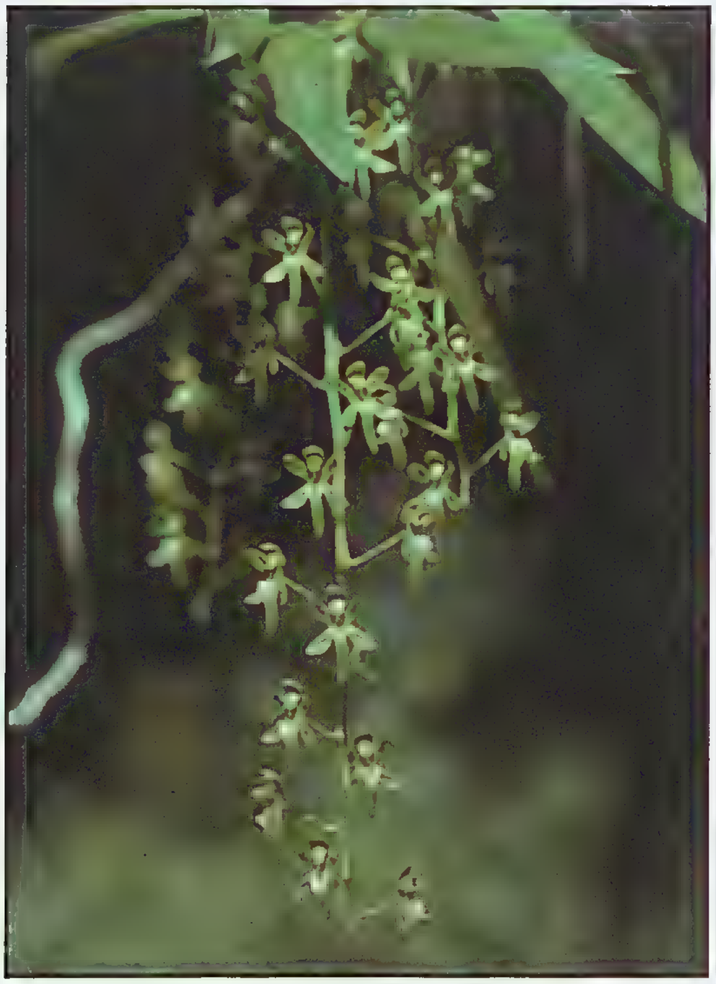
The successful cultivation of all orchids, but especially twig epiphytes, depends upon creating and maintaining an orchid house atmosphere that is conducive to the well being of these plants. Most of these species prefer cool, humid conditions, where temperatures seldom rise much above 30° C, even on very hot days, and are often well below this level for most of the time. Excessive temperatures, which are often accompanied by low levels of humidity, are damaging to these plants, and will cause dehydration and loss of vigour. If plants are exposed to such conditions too often or for too long, it may eventually be fatal. However, it should be noted that high



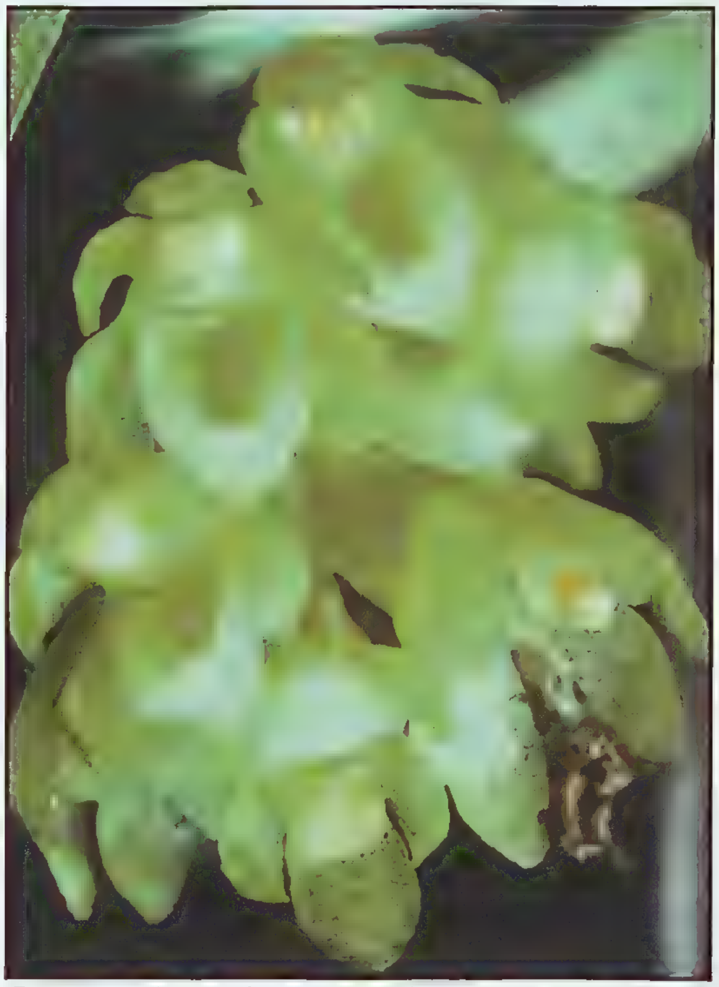
*Sarcochilus minutiflos,* Townsville district, North Queensland. Photo David Titmuss



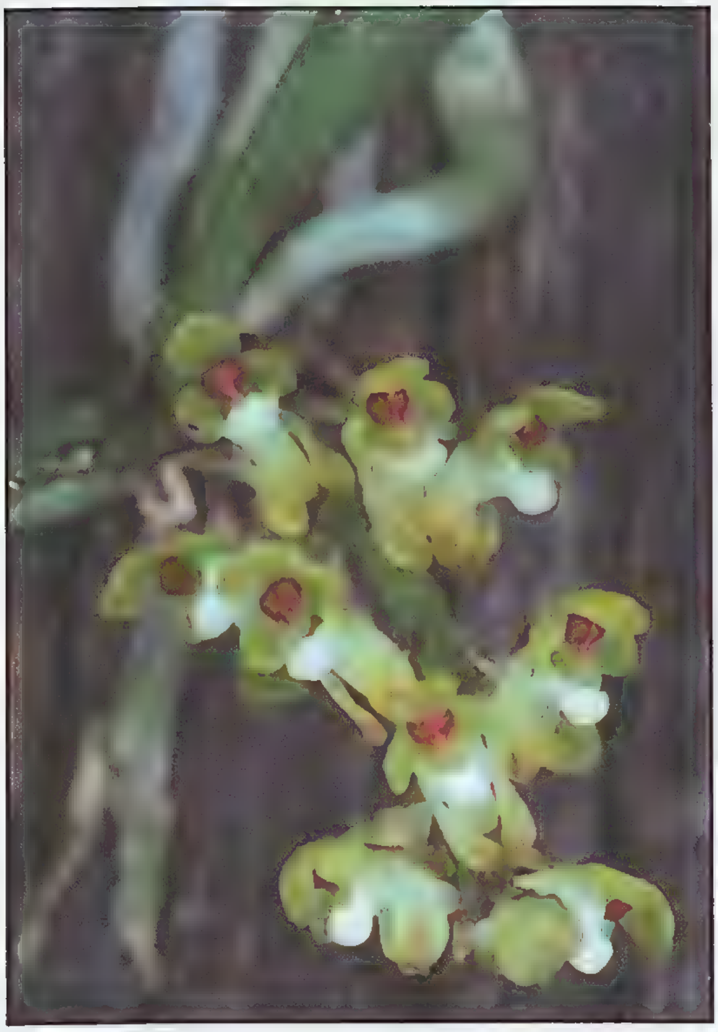
*Sarcochilus hirticalcar,* McIlwraith Range, Cape York Peninsula. Photo Michael Harrison



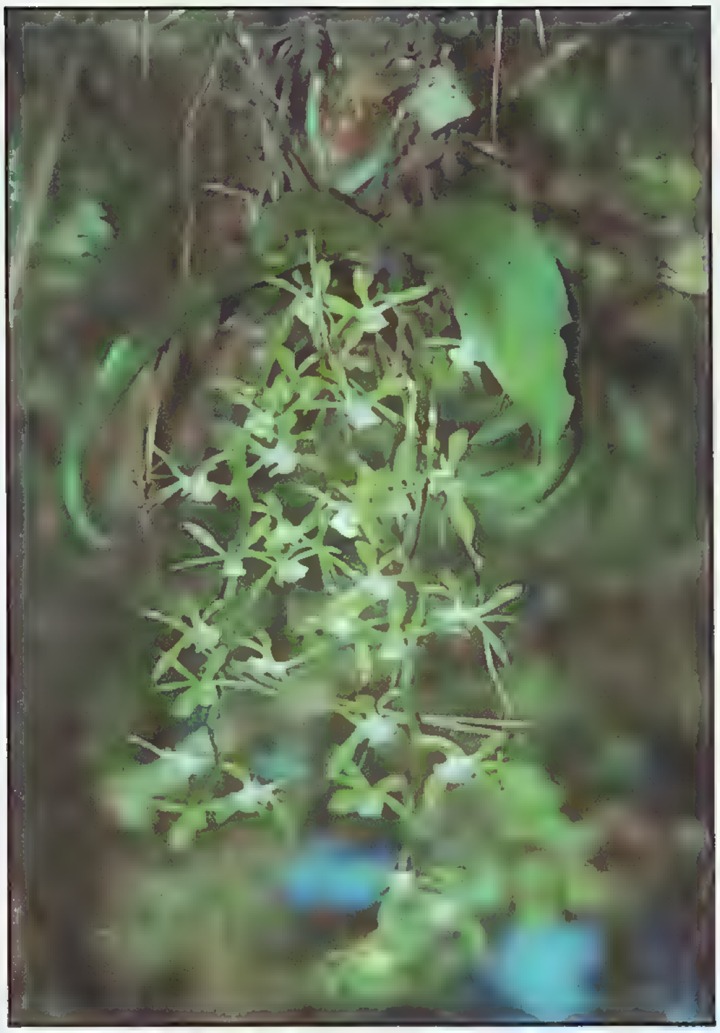
*Plectorrhiza brevilabris,*McIlwraith Range, Cape York Peninsula. Photo Michael Harrison



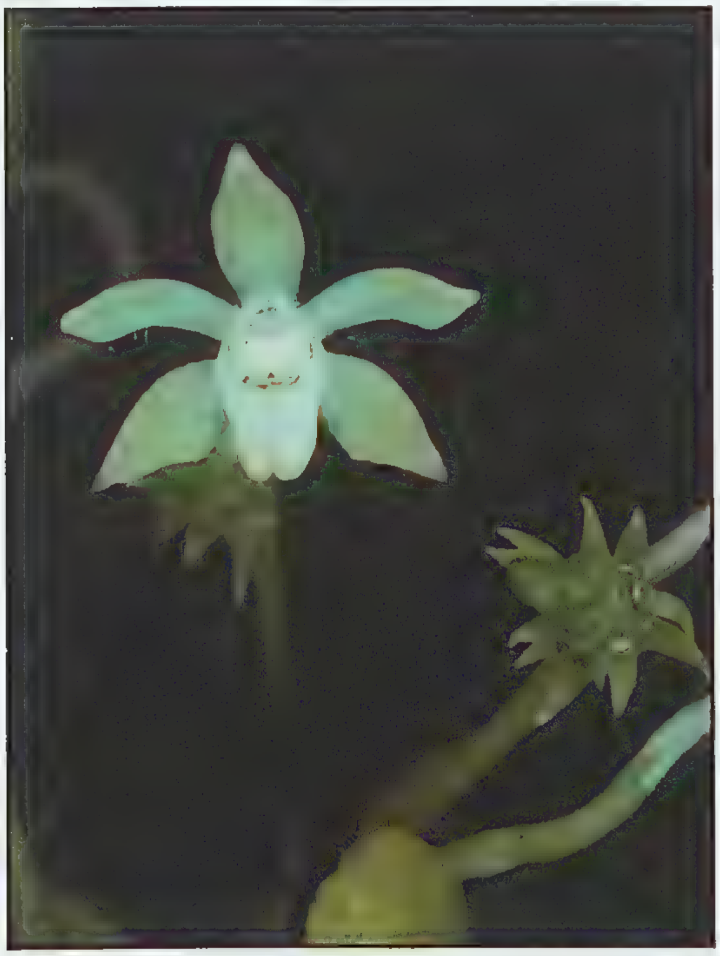
*Drymoanthus minutus*, a minature species from Far North Queensland. Photo David Titmuss



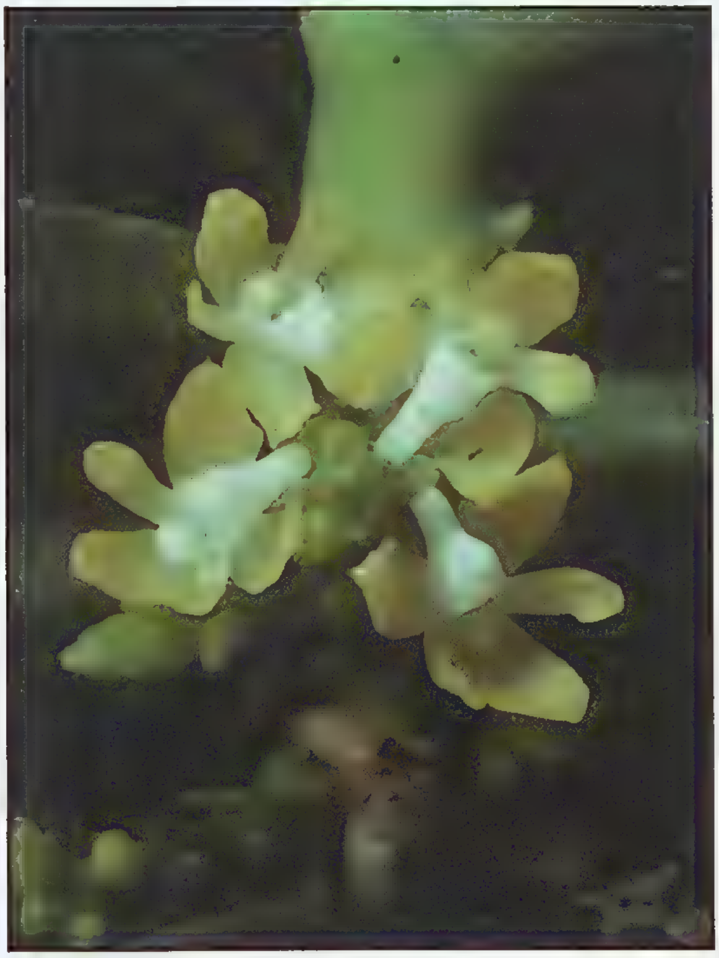
*Saccolabiopsis armitii*, "dry scrub" species from North Queensland. Photo David Titmuss



*Sarcochilus* affin. *olivaceus*, Eungella Queensland growing on the lower limbs of a Hoop Pine. Photo Michael Harrison



*Thrixspermum congestum*, Daintree River, Far North Queensland. Photo D.P. Banks



*Tuberolabium papuanum*, an uncommon species from Far North Queensland. Photo David Titmuss temperatures of up to 40°C can be tolerated for relatively short periods, although these should be avoided as much as possible.

During the warmer months it is important to provide adequate shading to reduce heat stress. Most twig epiphytes prefer quite heavy shade, and in cultivation double layers of 70% shadecloth will give suitable light conditions. Reduced light penetration will help to keep temperatures lower, and will also help in maintaining levels of humidity. Wintertime temperatures are usually not a problem, except for species with tropical requirements. Most of the temperate twig epiphytes are quite at home with night time winter minimums down to 0°C, and even a degree or two lower, as long as they are protected from frost.

Routine watering is an important cultural undertaking, but its timing and volume are questions of judgement on the part of the grower, taking into consideration prevailing weather conditions and the season. Many twig epiphytes live in mist zones, or in areas that receive regular, but often brief, showers of rain. Of course, there are times of prolonged, even torrential rain, like anywhere else, but the point to be made is that many species are happiest when receiving frequent, light watering, just enough to wet them down and keep them plump. During the summer it may be necessary to water these plants twice daily, in the morning and then again in late afternoon or evening.

With regard to fertilising, twig epiphytes are not heavy feeders, and one-third to one-half recommended strength liquid feed once a week, except during the winter, is a good regimen.

Twig epiphytes will not grow in pots in standard orchid potting mixes, and must be grown as slab plants. Many slab materials have been used, but the best for these plants by far is natural cork bark, sawn into suitable sized totems. The slab width or diameter need be no more than 2 or 3 cm, but the length of the slab depends upon the size of the species being grown. Most of these species have reasonably long roots, so ensure the slab is able to accommodate the expected root run. In general, treefern fibre is not suitable for any of the sarcanths, and most plants placed on treefern slabs or totems will refuse to send their roots into this medium, due to the acid, moisture- retaining nature of the fibre. However, treefern fibre is quite suitable for most dendrobiums and bulbophyllums. It will, of course, hold much more moisture for longer periods than cork, so watering should be adjusted accordingly.

Many twig epiphytes are difficult plants to maintain in cultivation. Because of their specialised requirements, they often do not perform well in the medium to long term, and several species are difficult to keep alive for more than a couple of years. There are some, such as *Sarcochilus olivaceus* and *Plectorrhiza tridentata* that generally grow strongly and present no particular problems, whereas such species as *S. australis* and *S. dilatatus* are notoriously unreliable.

For many years native orchid enthusiasts have pondered the problems of maintaining these plants in orchid collections. Typically, a plant will grow well when first introduced, and for a year or two, or perhaps even longer, it will be a picture of health. Then, for no apparent reason, it will simply shed its leaves, and usually all that remains will be the plant's roots. Over the next month or two these will slowly shrivel, and the plant is lost. Occasionally, a new growth will appear from the leafless stem, and the plant will revive itself, but this is uncommon. This process is known informally as "Sudden Sarc. Death Syndrome" (SSDS), a name applied by Gerry Walsh in a series of articles in *The Orchadian* and *The Orchidophile* some years ago.

It is difficult to understand just what the causative factors are, but it certainly does not appear to be the result of insect attack or some fungus or bacterial infection, although it should be noted that these problems do occur from time to time. A likely explanation is that SSDS is caused by unsuitable growing conditions, including such cultural variables as absolute temperatures and temperature fluctuations, lack of fresh air and air movement due to inadequate orchid house ventilation, humidity levels that are consistently too high or too low, incorrect light conditions (especially, for many of these species, light intensities that are too high), inappropriate watering techniques (watering too much or too little, watering at the wrong time of the day, or out of synchronisation with prevailing weather conditions), poor feeding programmes, and no doubt other factors.

Probably no one factor alone accounts for SSDS, but they act in combination to produce unsatisfactory conditions over a period of time, eventually resulting in a loss of plant vigour and then death. Whereas in most other groups of cultivated orchids, plants that are growing in unsatisfactory conditions become visibly weaker and their decline over a period of time is obvious, these twig epiphytes maintain apparent good health up to a certain point of no return, and then suddenly collapse. At present, the precise causative mechanism is unknown, and even in the hands of experienced growers with good orchid house conditions, these problem species are still unreliable and are not conducive to long-term cultivation. The fact that a number of them are now being grown from seed is a positive thing and should eventually provide horticultural forms that are more amenable to cultivation.

The fact that these species usually grow quite vigorously for a certain period after they have been brought into cultivation would suggest that conditions are initially to their liking, but that over a period of time a particular element necessary for long-term vitality is absent. Some stress factor is at work here but its exact nature is as yet unknown. It has been suggested that over watering and/or over feeding may be the cause, and this is worthy of consideration. Twig epiphytes usually colonise the thinnest, smoothest limbs, with their roots extending for a metre or more from the base of the plant, and often with a degree of aerialising. Their roots do not bury themselves into the bark, nor do they seek out thick moss pads, but instead remain completely exposed to the air. As such they genuinely could be called aerophytes, in that they derive virtually all of their requirements from the atmosphere, living on air as it were. The nutrients available to them from thin host twigs would be minimal, and likewise, although rainfall would provide water periodically, there would be little water-holding capacity. The bare twigs upon which they perch would dry out quickly after rain, leaving them to spend much of their time relatively dry. Fogs and mists probably satisfy most of their water requirements, and high levels of humidity, especially at night, would help to sustain them.

In the bush, these plants do not have somebody coming along and squirting them with a hose every day, and fertilising them once a week. Although they may respond positively to such treatment in the short term, for perhaps a season or two, it becomes a case of too much of a good thing for too long, and it eventually kills them.

The provision of fresh, moving air in the orchid house is of paramount importance for the well being of orchids generally, and twig epiphytes in particular, for they will not tolerate stale, stuffy conditions for too long. They are plants of the outermost limbs where almost constant air movement is a feature of their natural state. Too often, orchid house design or siting does not allow for adequate air movement into the house and across and around the plants. This failing is at the heart of so many cultural problems, and SSDS may simply be a response to poor air movement, especially during hot, humid weather, when SSDS is most likely to strike. A saturated, heavy atmosphere in a poorly ventilated orchid house during late summer and early autumn, when temperatures and humidity levels are high, presents real dangers for these orchids. It is often difficult for the grower to know what to do during hot summer days, when the first instinct is to water your orchids to keep them cool and damp. However, it can be a real trap to water orchids under these hot conditions, for unless you are able to reduce the temperature and then keep it down, the wet plants simply heat up again, as if in a Turkish sauna. They literally can be broiled by such treatment. It is better to keep the atmosphere as cool as possible by watering the paths and under bench areas, rather than watering the orchids as such. Save the watering for late afternoon or evening, when the plants will be cooled by the water and will remain cool and damp overnight. And remember to increase shading during the warmer months to reduce heat and light stress on the plants during these times.

Certainly, the best thing a grower can do is to visit these plants in the wild to see and assess the conditions under which they live. Of course, they do not all grow in the same places and under the same conditions, so it is important to gain an understanding of the ecological requirements of each species. Those that tend to grow in drier forest associations, such as *Sarcochilus australis*, *S. dilatatus* and *S. hillii*, usually grow in brighter light and are able to tolerate longer periods without rainfall, whilst wet forest species, like *S. spathulatus* and *S. olivaceus*, are more sensitive to these factors. Many other subtle variables come into play, and it is by experiencing the natural habitat that the grower may draw conclusions about how best to replicate the environmental conditions necessary for cultural success.

## Acknowledgements

My sincere thanks to the following people for advice, suggestions and discussions on the topic: David Banks, Mark Clements, Jim Cootes, David Jones, Darryl Smedley, David Titmuss and Gerry Walsh.

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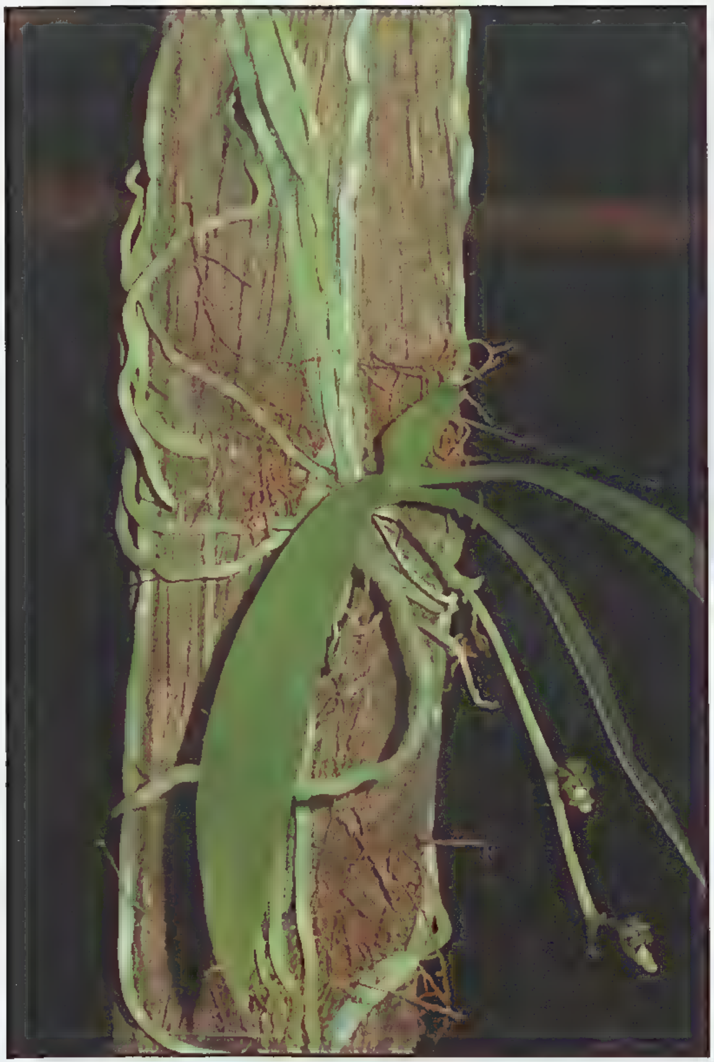
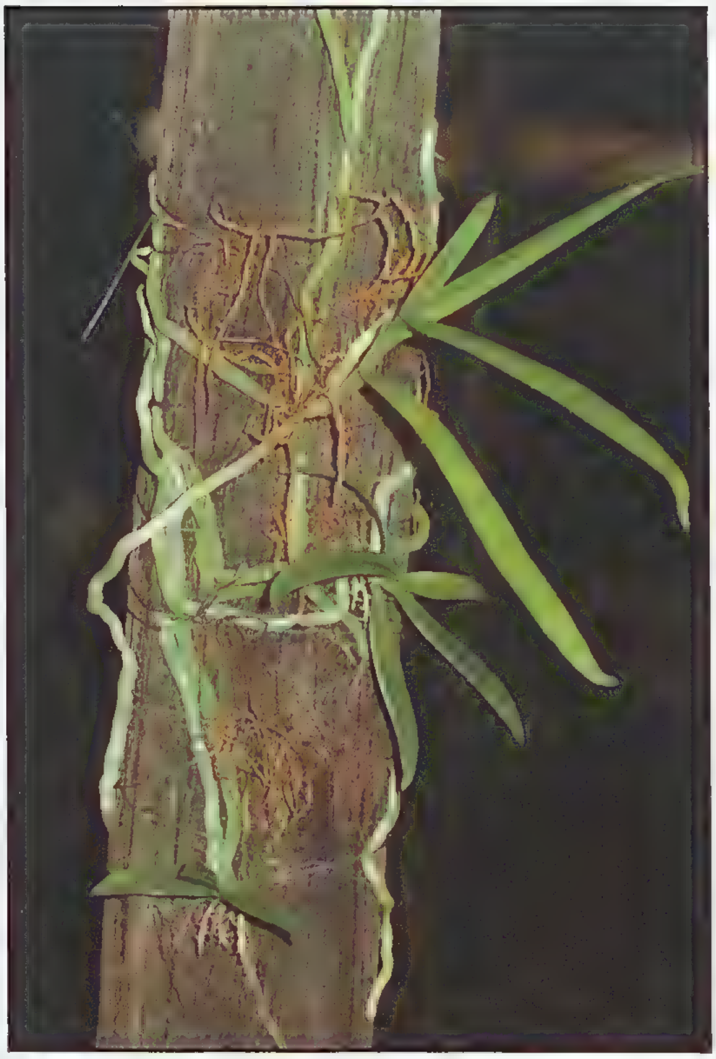


*Sarcochilus spatulatus* in bud growing on a hardwood slab.



*Drymonathus minutus* seedlings growing on a hardwood slab.

Growing conditions inside the authors fibreglass orchid house.

Photos Michael Harrison

# The native orchids of Iluka Nature Reserve, northern New South Wales

Lachlan Copeland
Centre for Ecology, Evolution & Systematics
Botany, University of New England
ARMIDALE NSW 2351.
Email: lcopela2@metz.une.edu.au

## Introduction

Iluka Nature Reserve, comprising 136 ha, is located on the northern side of the township of Iluka on the North Coast of New South Wales. Although small, Iluka is a popular tourist destination, and is well known for its estuary fishing and its close proximity to Iluka Nature Reserve and Bundjalung National Park. Iluka Nature Reserve contains the largest remnant of littoral rainforest in NSW, the significance of which is reflected in its World Heritage listing. Although rainforest communities are often considered to be depauperate in terms of terrestrial orchids, the reserve contains a number of interesting ground orchids in addition to several epiphytic species. I have been fortunate enough to have spent several days botanising the reserve and believe the orchid flora is worthy of special note. This paper gives brief details on orchid species that have been recorded in Iluka Nature Reserve and includes notes on their conservation significance.

## The terrestrial orchids

***Acianthus exiguus*** – This diminutive ground orchid is the smallest in the genus and is considered to be particularly rare on a national scale (Jones 1991; Briggs & Leigh 1996; Bishop 2000). It is currently known from just a few widespread localities from south of Coffs Harbour north to Wardell on the Richmond River. A population of about one hundred plants exists on the far northern side of Iluka Nature Reserve close to its boundary with Bundjalung National Park. The vegetation here is typical littoral rainforest with a closed canopy and very low levels of light filtering through to the ground.

The population in Iluka Nature Reserve varies from typical *A. exiguus* as described by Jones (1991) of the Australian National Herbarium, Canberra. After examining fresh material of my collections, however, David Jones still considers the Iluka plants to fall within the circumscription of *A. exiguus*. Flowers of the plants in Iluka Nature Reserve are particularly green for the species and have slightly longer terete points on the sepals (David Jones pers. comm.).

***Acianthus fornicatus*** – This widespread species is abundant in the drier, open woodland communities within the reserve e.g. along the southern boundary.

***Calanthe triplicata*** – I have only seen a single individual of this species in the reserve and it disappeared approximately five years ago. Williams (1966; 1990) recorded it on his unpublished species lists of plants for the rainforest and it may well have been more common in the past.

***Cheirostylis notialis*** – This inconspicuous species is scattered throughout moister areas of the reserve, particularly in the rainforest. It was described by Jones (1997) who considered it to be the only species of *Cheirostylis* in New South Wales.

***Chiloglottis diphylla*** – This widespread species is abundant in drier communities within Iluka Nature Reserve. Particularly dense colonies occur within the southern half of the reserve where up to a dozen flowering plants can be observed per square metre (see photo).

***Pterostylis nutans*** – Large numbers of the nodding greenhood occur in drier areas in the southern and western sections of the reserve.

***Pterostylis erecta*** – Common in littoral rainforest in the northern half of the reserve. Plants of this attractive taxon have particularly red flowers (see photo) and may differ from typical *P. erecta* from southern Queensland (David Jones pers. comm.).

***Taurantha ophioglossa*** – Also known as *Pterostylis ophioglossa*, this species is common in drier areas in the southern half of the reserve.

***Thelymitra pauciflora*** – A small population of this sun orchid occurs along the southern boundary in the drier *Corymbia* layered woodland. The plants fit *T. pauciflora* in the strict sense as circumscribed in the revision of the *T. pauciflora* complex by Jeanes (2004).

***Acianthella amplexicaulis*** – Formerly known as *Acianthus amplexicaulis*, this species is common in the rainforest in the northern section of the reserve. Although it is considered to be a rare species (Briggs & Leigh 1996), I have found numerous populations of this species in northern New South Wales and suspect that its tiny, pale-coloured flowers have led it to be largely overlooked in the past.

***Zeuxine oblonga*** – Another true rainforest species, this terrestrial orchid is scattered in moister areas along the far northern boundary of the reserve. It appears to be most common along the walking tracks and is perhaps favoured by some level of disturbance.

### The epiphytic orchids

***Cymbidium suave*** – Rare to occasional in the drier, western side of the reserve. A few plants also grow in the rainforest.

***Cymbidium madidum*** – Common to abundant in the rainforest growing on a variety of hosts such as Broad-leaved Lilly Pilly (*Acmena hemilampra*) and Riberry (*Syzygium luehmannii*). This is probably the most common and easily observed of all orchid species within Iluka Nature Reserve.

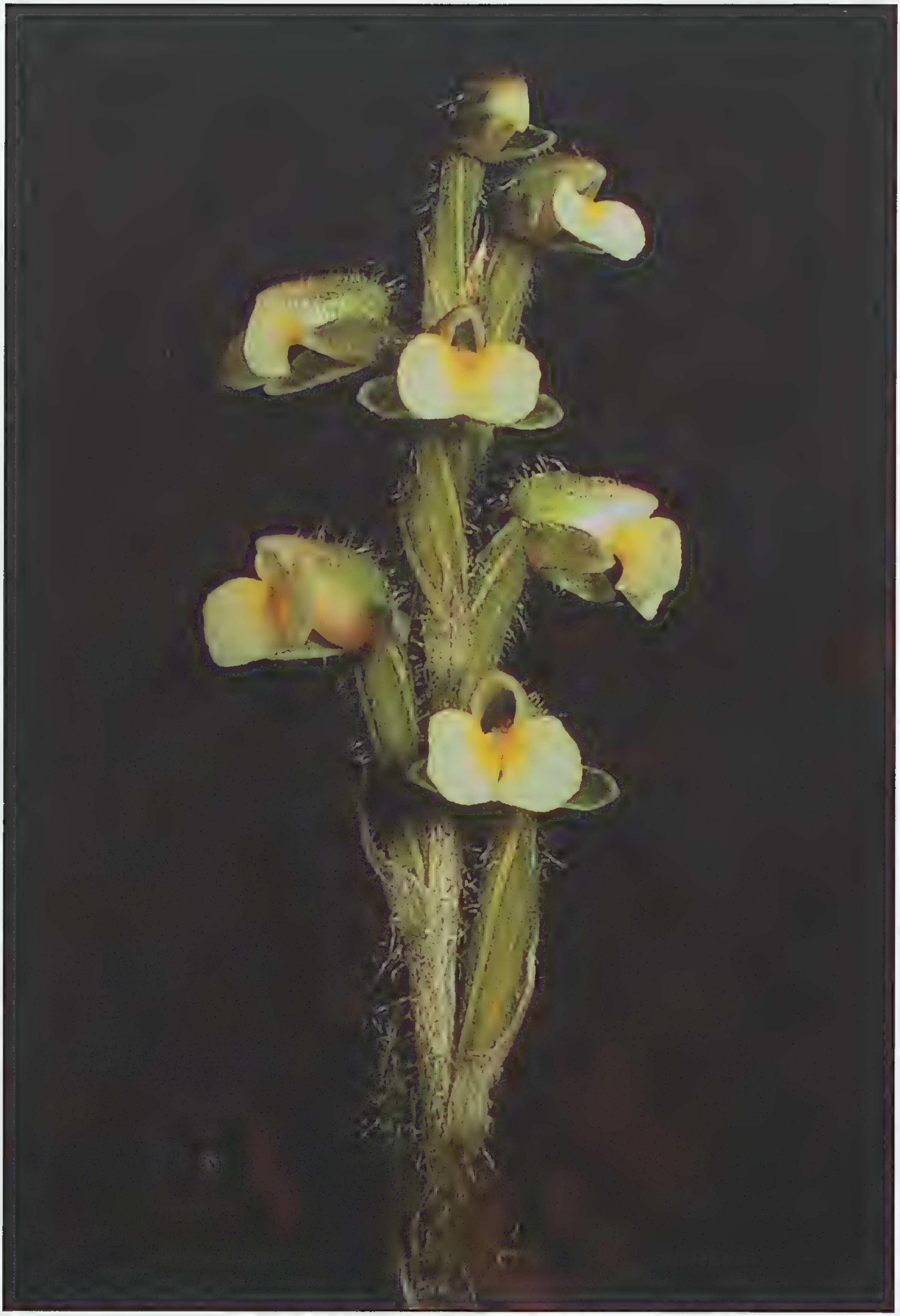
***Dockrillia linguiformis*** – Also known as *Dendrobium linguiforme*, I have not seen this species within the reserve myself but it was recorded for Iluka Nature Reserve by Williams (1966; 1990).

***Oncophyllum minutissimum*** – Also known as *Bulbophyllum minutissimum*, this rare orchid (Briggs & Leigh 1996) has so far eluded me, despite a great deal of searching. Williams (1990) recorded it in the rainforest stating that it was locally rare. A herbarium specimen of this species from Iluka Nature Reserve is also held in the National Herbarium of NSW, Sydney.

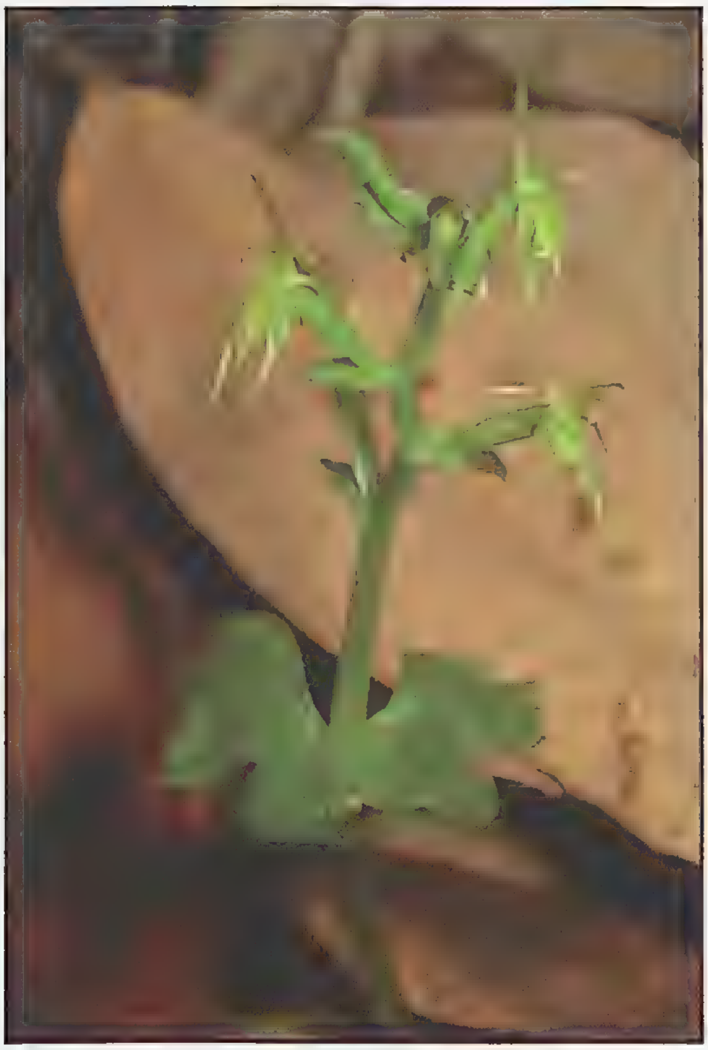
***Peristeranthus hillii*** – This species appears to be very rare within the reserve and I have seen just a single individual close to the northern boundary. It is possible that its tendency to grow close to the ground has led its numbers to be depleted by unscrupulous collectors, a problem also highlighted by Bishop (2000). John Williams (pers. comm.) now believes that the infertile specimen of *Sarcochilus* that he previously recorded for the reserve (Williams 1966; 1990) was possibly a small plant of *Peristeranthus*.

### Threats

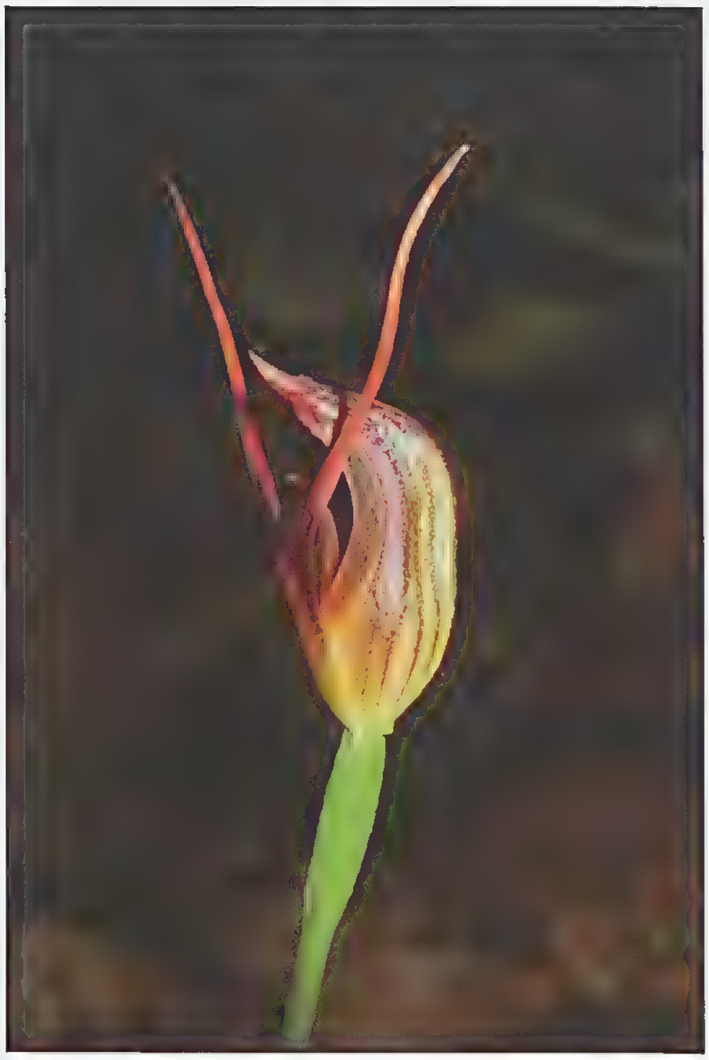
The main threat to the orchids of Iluka Nature Reserve (and the rest of its unique flora) is associated with competition from exotic weeds. A number of aggressive environmental weed species are naturalised in the area and their impacts appear to be most severe along the eastern and southern boundaries of the reserve. Bitou Bush (*Chrysanthemoides monilifera* subsp. *rotundata*) and Lantana (*Lantana camara*) form dense, impenetrable thickets along the ocean (eastern) side of the reserve and both are of great concern. I have found



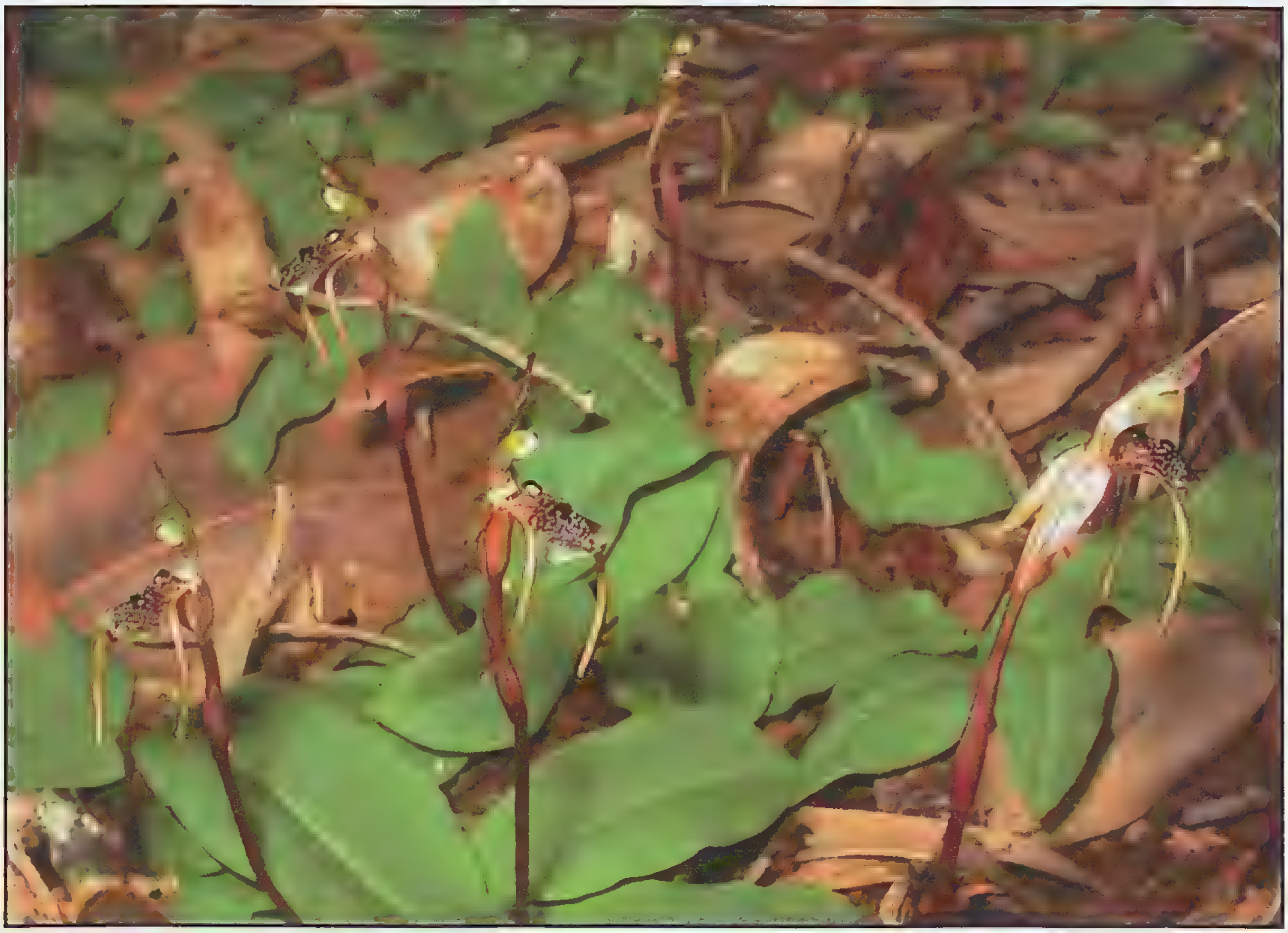
*Zeuxine oblonga*



*Acianthella amplexicaulis*



*Pterostylis erecta*



*Chiloglottis diphylla*

Photos Lachlan Copeland

very few orchids in this area although I must admit I have rarely ventured into these dense monocultures.

Four other weedy species are of concern throughout the reserve but are at their worst along the southern boundary. These are Brazilian Nightshade (*Solanum seaforthianum*), Madeira Vine (*Anredera cordifolia*) and two species of Asparagus fern (*Protasparagus plumosus* and *P. aethiopicus*). Fortunately, the NSW National Parks & Wildlife Service is well aware of the problems and is committed to preventing the further spread of these environmental weeds. Likewise, feral animals such as goats and pigs (both common threats to orchids) are subject to regular control programs in the area and are not considered to be a problem in Iluka Nature Reserve (National Parks & Wildlife Service 1995).

Other potential threats to the orchids in Iluka Nature Reserve include illegal collecting by horticulturalists and damage to their habitat by wildfires. The latter is probably unlikely to occur in the short term although the former remains a threat to many populations of orchids throughout much of Australia. I believe it is no coincidence that the majority of epiphytes in Iluka Nature Reserve occur in the upper canopy of the rainforest well out of reach of people. Within 2-3 metres of the ground there are now relatively few epiphytes and several non-orchid species (e.g. Bird's Nest Fern, *Asplenium australasicum*) are also likely to have suffered.

## Summary

Iluka Nature Reserve protects a highly significant area of littoral rainforest and provides habitat for at least sixteen species of native orchid. Some of these are exclusive to the rainforest while many of the terrestrial species are only found in drier *Eucalyptus – Corymbia – Acacia – Lophostemon* dominated communities. Environmental weeds present a threat to the sustainability of some of these orchid populations, however the reserve is probably small enough to make weed control a practical option in the long term. If any readers know of additional species records I would be most grateful for their comments.

## Acknowledgments

I would like to thank David Jones for confirming the species identification of *Acianthus exiguus* and for comments on *Pterostylis erecta*. I am also grateful to Jeremy Bruhl and Bill Holzinger for comments on the manuscript and valuable feedback.

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# My search for the 'Tiger Orchid' *Cymbidium canaliculatum*

Roger Herraman
Beaumont, SA
herraman@austarmetro.com.au

*Cymbidium canaliculatum* has always held a special appeal for me. With its thick, deeply channelled leaves and overall grey-green appearance, it is one of only three *Cymbidium* species endemic to Australia. The other two, *C. madidum* and the smaller *C. suave,* whilst vastly different in plant appearance are somewhat similar in flower colour and size. *C. canaliculatum* is a plant which prefers the drier inland areas of eastern and northern Australia and is rarely found in coastal regions. Flower colour ranges from pale green and yellow through to brown and deep maroon with combinations of spotting and markings of all these tones. Racemes may carry up to fifty or sixty flowers with a large specimen carrying many racemes being an unforgettable sight.

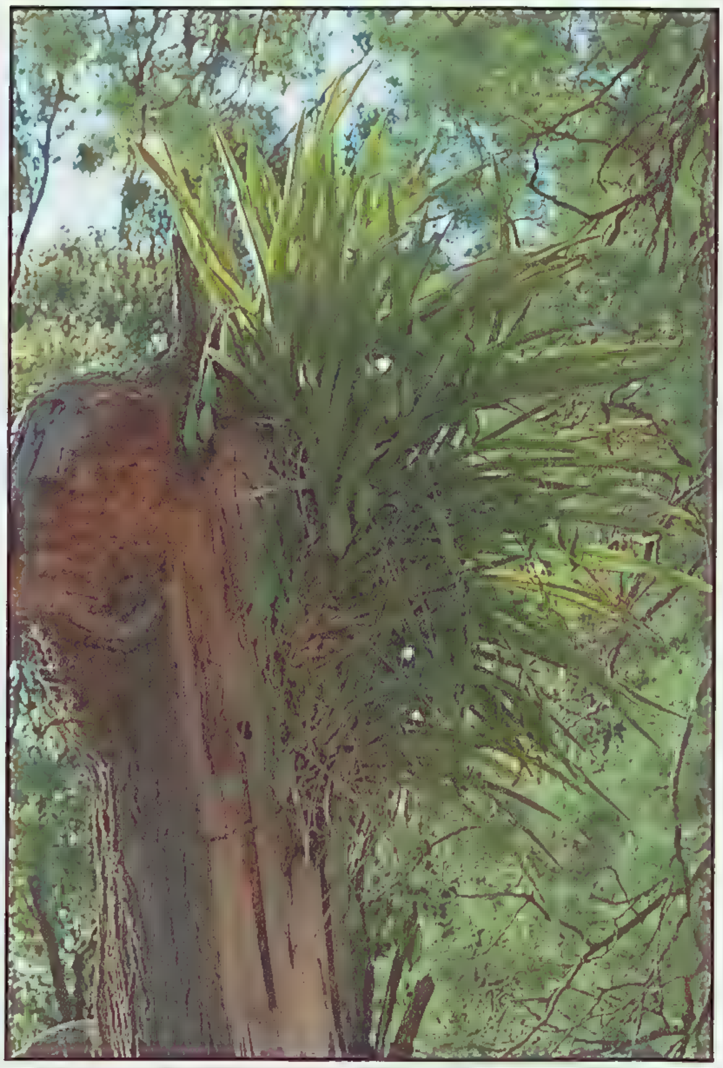
Having grown and enjoyed the variances and vagaries of this species for so many years, I felt it was time to actually see it for myself growing in its natural habitat. I had read many years ago that this wide ranging species usually occurs on the western slopes of the Great Dividing Range from central New South Wales (around Forbes) on up through the New England Plateau and continuing north to Cape York Peninsula, then across the Gulf Country and Arnhem Land to the Kimberleys and on down towards Broome. This must be one of the most widely distributed epiphytes in Australia.

I have been growing native orchids and a few exotics in suburban Adelaide for over thirty years, but throughout this time *Cymbidium canaliculatum* has always been my favourite.

Seeing examples, or obtaining plants of this species has always been a little difficult in Adelaide, probably because few orchid enthusiasts here bother to cultivate it when they can grow some of the very best *Cymbidium* hybrids in the world. Certainly, *C. canaliculatum* does require very different treatment from the modern showbench hybrid types.

Growing this orchid in Adelaide has never been any trouble for me, partly due to our drier climate and also because I have never been known as a heavy waterer of plants – a feature they clearly appreciate. I keep my plants in a fairly open greenhouse, clad in polycarbonate sheeting with a 50% shadecloth canopy during the summer (October to Easter). No artificial heating is used during the winter months, although I am sure the plants would benefit from a little extra warmth during this period. Potting media is generally a mix of medium and large grade pine bark with a liberal sprinkling of river gravel. In recent years I have added a little Maidenwell Diatomite to the mix, with no adverse effects. This mix is very free draining and lasts for many years as I have found that they do not appreciate being disturbed very often. Almost all of my plants are suspended either from the roof or sidewalls, as I believe they receive the benefit of more air movement that way. Only the larger plants are benched. Flowering time here in an average year is from late November through to late January. Watering is rarely more than once per week during the growing season and for the period from Easter through to about late September they may receive only a couple of light drinks. They receive the same fertilizer as my other plants, that is, very weak low nitrogen organic types. During a very hot February 2004, I

*Cymbidium canaliculatum*, Tregole.



*Cymbidium canaliculatum*, Kenobri Rd.

*Cymbidium canaliculatum*, Gunnedah.

Photos Roger Herraman

succumbed to actually watering them twice weekly, however they would probably have been just as happy with their weekly drink.

Being a working man with limited time available to go ‘bush’, I decided that I must enlist the help of a few people, who could steer me in the right direction to avoid wasting time in areas where it did not occur or was rarely found. Two native orchid growers, both from Sydney, were of great assistance to me in ‘homing in’ on areas where they had seen it growing in the past, sometimes in abundance. This was just the sort of information I needed so that I could use my restricted time to the best advantage.

The only time I had to take this trip was in June. Obviously this was not the optimum time of the year to see them either flowering or in a growing phase, but I had no choice. The plan was to travel north from Adelaide via Broken Hill and Bourke to the central Queensland coalfields area, then make my way back south a little closer to the coast to the Inverell area in northern New South Wales, spending a few days in that area before heading east to the coast.

My first stop was at Tregole National Park, east of Charleville in southern Queensland. Here *C. canaliculatum* can be seen growing in abundance on *Ooline* trees and in a more shaded aspect than I had expected. Plants ranged from small seedlings growing out of cracks in the trunks to massive specimens spanning over a metre. Most noticeable was the fact that the majority of plants seem to grow in the middle third of their host trees and are rarely seen in the upper canopy. Almost all of the plants observed were growing directly out from the vertical tree trunks rather than nestled upright in the forks. I did notice one small plant firmly attached to the upper trunk of a very large Queensland Bottle Tree (*Brachychiton rupestris*).

After travelling east through Mitchell, Amby and Roma, I headed northwards past Injune, Rolleston and Springsure observing many large and small plants mainly on Ironbark with a few on other eucalypts. These plants were all within 100 m of the main road. What became quickly evident to me was the variation in leaf colour and pseudobulb/leaf size from the various locations. Whether this is caused by varying climatic conditions or plant aspect, I do not know, but it was very apparent.

Having reached Emerald I decided to have a look around the old gem mining towns of Anackie, Sapphire and Rubyvale. I was not disappointed in what I saw in these areas. Many very large clumps could be seen throughout the open ironbark woodland.

Heading northwards from Emerald, I passed through Clermont and Moranbah and on to Dysart. The country appeared to get progressively drier as I ventured north, but the *C. canaliculatum* was still seen in abundance throughout this area. I was amazed at how exposed these large plants were to the elements. Many were seen very high in dead trees completely at the mercy of whatever the hot Queensland sun could throw at them. I noticed several small plants eking out their existence on top of fence posts and old timber power poles.

Back to Emerald and travelling east towards Rockhampton I stopped a number of times to photograph large plants quite near the highway. The township of Duaringa was as far east as I was prepared to go, as by now, I was a little behind my already tight schedule.

After a very quick visit to the Blackdown Tablelands (in which I saw no *C. canaliculatum* at all, but did not venture very far in), I headed back south again through Roma to St. George and Mungindi, which is situated on the Queensland/New South Wales border. From there I travelled to Goondiwindi and on to Inverell via

Moree and Narrabri seeing plenty of fine specimens along the way.

Some orchid people in Adelaide and New South Wales had told me that a good area to look at was the Pilliga Scrub region – a very large tract of mainly cypress pine northwest of Coonabarabran. I observed dozens of quite large plants in this area, although I had to venture off the 'beaten track' to see them. Many plants carried an abundance of seed pods. The majority of *C. canaliculatum* sighted in this area were growing on various eucalypts with very few seen on the cypress trees. The plants in this location appeared more greenish in colour and of softer leaf texture than I had found further north.

Next area to have a look at was the Bingara, Warialda, Texas region on the western flank of the New England Tablelands. I found this part of my journey to be the most rewarding as far as numbers of plants observed. By this stage of my journey I had developed a fairly keen eye for 'spotting' *C. canaliculatum* in the trees and the kind of country they inhabited. There were hundreds of plants growing very happily in this region which led me to conclude that this particular environment must suit them well. In general, plants had much larger pseudobulbs, more vigorous and luxuriant than the previous areas visited.

I had organised to visit a good friend and fellow *C. canaliculatum* grower in Ballina, New South Wales, who had pre-arranged a two day drive to visit a close friend of his just out of Toowoomba. Travelling through Tenterfield, Bonshaw and Inglewood we observed a number of large plants, although not as many as I had encountered a little further to the south. We were taken to a number of locations southwest of Toowoomba in the Pittsworth and Southbrook districts. Many fine examples of the species were observed growing mainly on dead ironbark, but occasionally thriving on live trees as well.

On my way home to Adelaide I did make two 'surprise' sightings of *C. canaliculatum* in areas which I had previously believed to be outside its habitat range. The first was near Merriwa, high in the Great Dividing Range. I could not imagine a colder nor wetter place to find it, but a very large plant was growing happily high in a large old gum tree less than 100 m from the highway. The second sighting was a small number of strong growing plants nestled contentedly in healthy, large Ironbarks in the Mirrool area, approximately 40 km south of West Wyalong.

My basic aims for this trip were to find, observe and photograph plants from as wide a habitat range as possible in the time I had available. To this end I was entirely satisfied as I had seen many more plants than I had ever anticipated. I observed enormous specimens growing undisturbed in very old trees, which I hope will remain doing so for many years to come. A minor regret was that I did not venture far enough north towards 'sparkesii' territory, but I would have needed another week or more to explore some of this variety's domain.

My thanks and appreciation is extended to those people, who offered such reliable advice on where to look and what to look out for. I would not have been able to enjoy this successful journey had it not been with the benefit of their knowledge and experience. Being simply a hobby grower, my observations in the field were very basic. For instance, due to the timing of the trip, I was not able to note such characteristics as raceme habit, flower colour and size, multiple flowering habit and flowering time. Oh well, maybe next year around October-November I will strive to venture north and answer some of these questions.

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## Orchid Weekend Workshop in Canberra 19th-20th March, 2005.

The Orchid Society of Canberra is hosting an Orchid Weekend Workshop in Canberra over the weekend of 19th/20th March, 2005 at the Sundown Motel Resort in Narrabundah, in Canberra.

Clive Halls of Mt Beenak Orchids and Wayne Turville of The Australian Orchid Nursery will be our guest presenters. Clive Halls sells an enormous range of cool-growing orchids, and Wayne specialises in Australian natives. In addition to speaking on the trends in hybridising and on orchid culture, Clive and Wayne will have many beautiful orchids for sale.

The format will be morning and afternoon presentations on Saturday, starting about 10 am, and a morning session on Sunday, and closing with lunch on Sunday. Teas and lunches are included in the registration fee of $50. Dinner on Saturday evening at the Sundown Motel Bistro will be at the expense of participants.

Although the Workshop is still many months away, you should be aware that the weekend concerned is the Canberra Day long weekend and so accommodation may be in short supply. Those planning to join us for the weekend should arrange their accommodation at an early date.

Full details (including accommodation suggestions) and registration forms are available on the OSC website: http://www.geocities.com/RainForest/Vines/7040/ or from me on (02) 6297 1427.

Bob Bush, *President, OSC*

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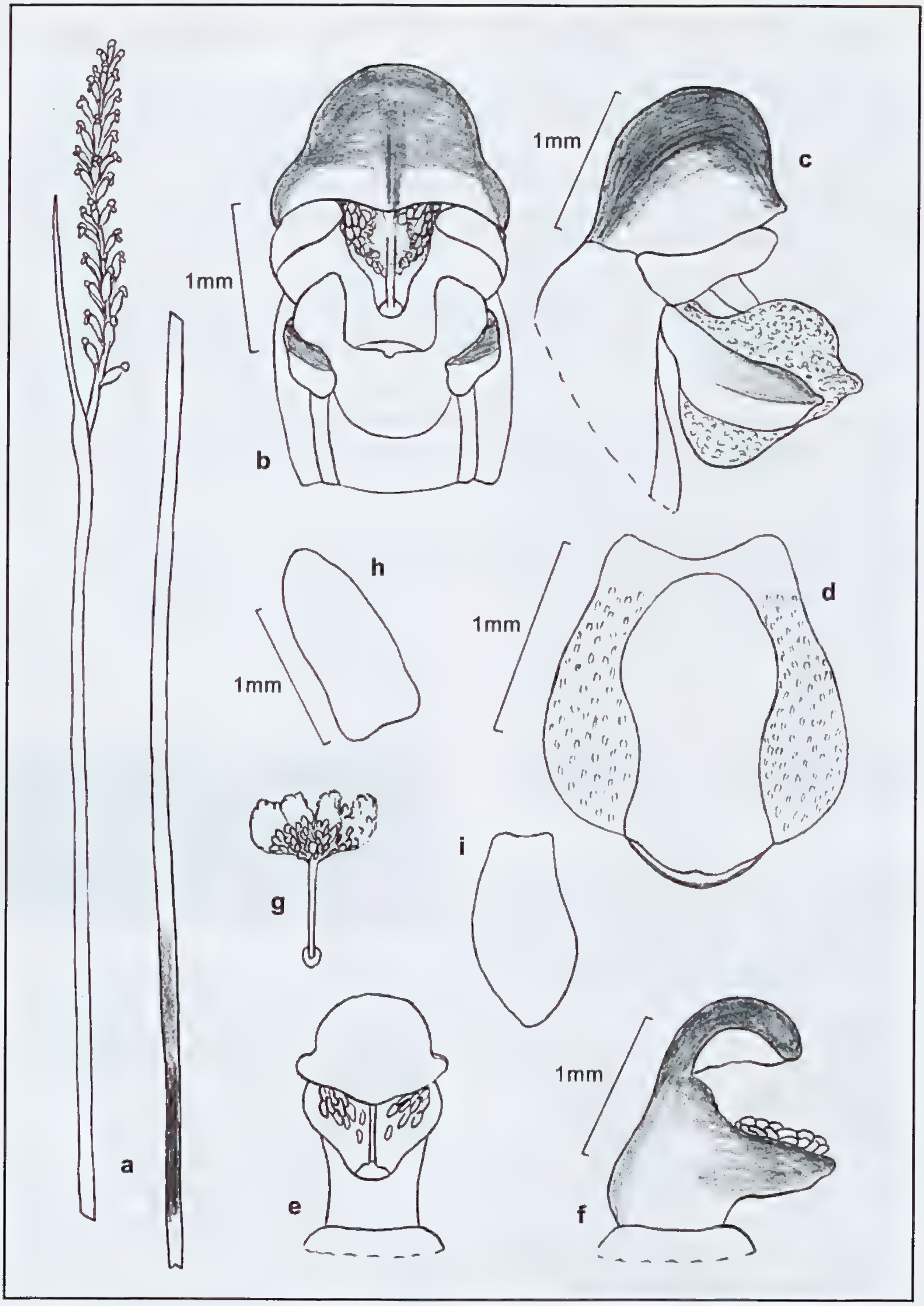

**Captions**

**Fig. 1.** *Hydrorchis cupularis*, Piney Lakes, Winthrop, Western Australia, C.J.French 2769; a. plant; b. flower from front; c. flower from side; d. labellum from above, flattened out; e. column from front; f. column from side; g. pollinarium; h. petal; i. lateral sepal.

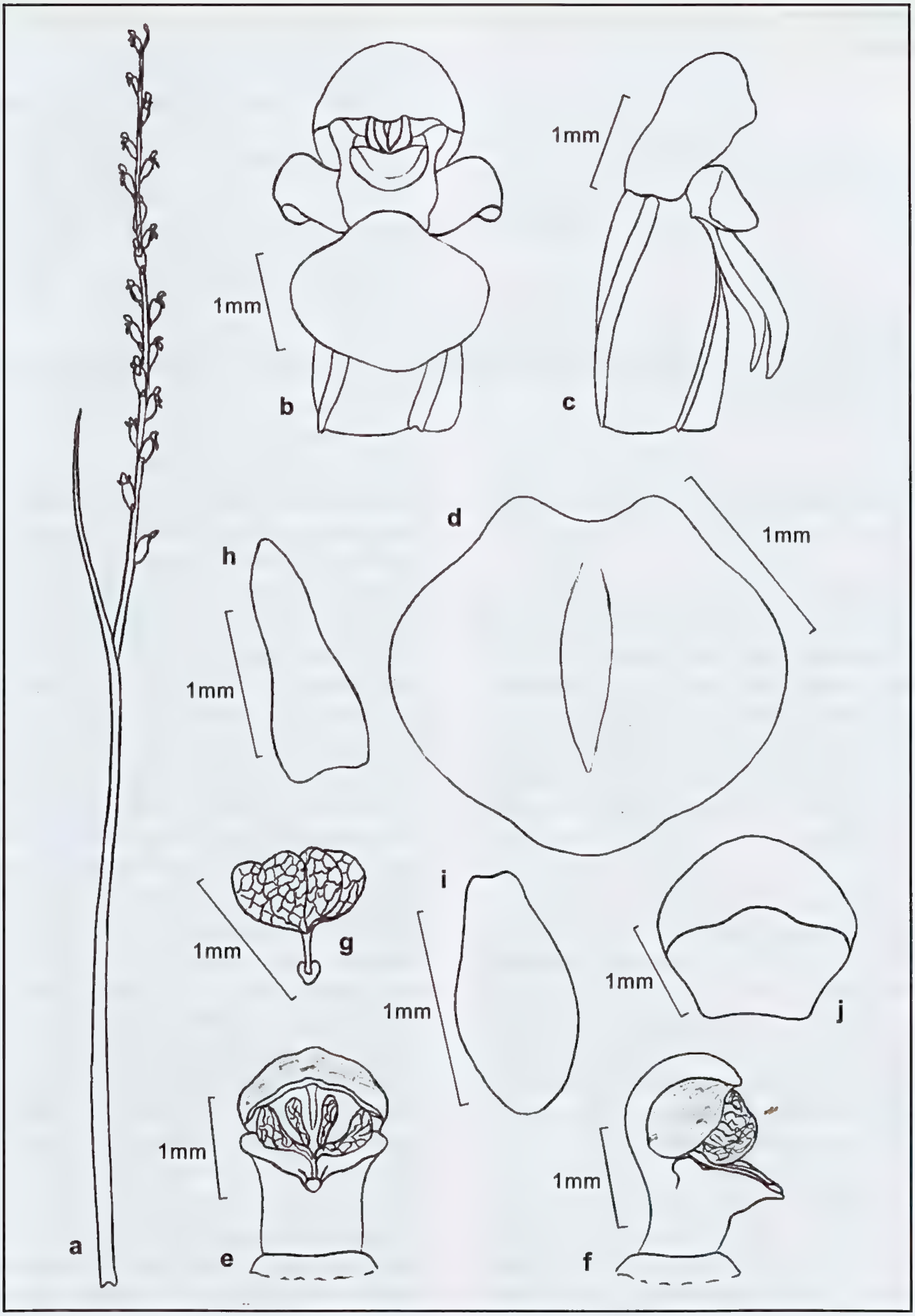

**Fig. 2.** *Hydrorchis orbicularis*, Brookton Highway, Western Australia, C.J.French 2699; a. plant; b. flower from front; c. flower from side; d. labellum from above, flattened out; e. column from front; f. column from side; g. pollinarium; h. dorsal sepal; i. petal; j. lateral sepal.

# *Hydrorchis cupularis* (Orchidaceae), a new species from Western Australia

David L. Jones# and Garry Brockman*

#Centre for Plant Biodiversity Research,
GPO Box 1600,
Canberra, ACT, Australia, 2601.

*41 Robinson Road, Roleystone, WA, 6111.

## Abstract

*Hydrorchis cupularis*, a distinctive new species from Western Australia, is described as new and illustrated.

## Key Words

Orchidaceae, *Hydrorchis orbicularis*, *H. cupularis*, new species, Australian flora, Western Australia.

## Introduction

*Hydrorchis* D.L.Jones & M.A.Clem., is a small genus recently segregated from *Microtis* based on floral and vegetative differences (Jones *et al.* 2002). The genus was originally treated as monotypic but a recently recognised species from south-western Western Australia is described here as new.

## Taxonomy

***Hydrorchis cupularis*** D.L.Jones & G.Brockman sp. nov.; affinis *H. orbiculari* (R.S.Rogers) D.L.Jones & M.A.Clem., sed sepalo dorsali penitus cucullato, rubello; sepalis lateralis incurvis labellum alligantibus; petalis incurvis; et labello valde cyathiforma, micropapillis numerosis decoratis, differt.

Type: Western Australia: Piney Lakes Nature Reserve, Murdoch Drive, Bullcreek, 32˚2'58"S, 115˚50'37"E, 13 Oct. 2000, *G.Brockman 684* (holo: PERTH 6001114; iso: AD, BRI, CANB, MEL, NSW).

Tuberous terrestrial *herb* growing in small to dense groups. *Plants* 25-35 cm tall, stout. *Tubers* not seen. *Leaf* linear, terete, 30-40 cm long, 3-5 mm wide, green, shorter than the inflorescence; base 2-3 mm across, purple; free lamina erect, 4-6 cm long. *Inflorescence* emerging from the leaf near its apex, subspicate; raceme dense, 5-12 cm long, 15-40-flowered. *Floral bracts* closely sheathing the pedicel and base of ovary, ovate, c. 2.5 mm long, c. 2.5 mm wide, acute. *Pedicels* c. 1 mm long, slender. *Ovaries* at 30-40˚ to the rhachis, obovoid. *Flowers* shortly stalked, c. 1.5 mm across, green with purplish suffusions. *Dorsal sepal* porrect, ovate, c. 1.3 mm long, c. 1.8 mm wide, deeply cucullate over the column. *Lateral sepals* incurved and clasping the labellum, narrowly obovate, c. 1 mm long, c. 0.5 mm wide, subobtuse. *Petals* incurved, partially enclosed within the dorsal sepal, oblong, c. 1.3 mm long, c. 0.5 mm wide, subobtuse. *Labellum* sessile, porrect to obliquely decurved, cupulate to saccate; labellum lamina oblong-obovate when flattened, 1.4-1.7 mm long, c. 1.5 mm wide, fleshy, the margins of the ventral surface and the exterior with numerous micropapillae; margins curved upwards; apex broadly obtuse. *Callus* consisting of a smooth oblong central plate, c. 1.5 mm long, 0.6 mm wide. *Column* obliquely erect from the end of the ovary, c. 1.6 mm long, c. 1 mm wide; column wings vestigial. *Anther* c. 0.7 mm long. *Stigma* c.

0.8 mm wide, ovate-quadrate. *Pollinarium* c. 1.2 mm long; pollinia 4, obovoid, c. 0.5 mm long, yellow, mealy; viscidium minute. *Capsule* erect, ellipsoid, 5-6 mm long, 2-3 mm wide. **Fig. 1.**

### Distribution and Ecology

Apparently restricted to south-western Western Australia although there relatively widespread and locally common. The species grows in swamps dominated by paperbarks and seems to flower freely in unburnt and burnt habitat. Altitude: 15-30 m. Flowering period: October-November.

### Notes

The distinctiveness of this species was first recognised by Garry Brockman in 1999. The new species has similarities to *H. orbicularis* but is more robust, with more numerous flowers (typically 30-45 or more compared with 10-20 in *M. orbicularis*) which have a very deeply cucullate dorsal sepal of reddish-maroon colouration (shallowly cucullate and green in *H. orbicularis*). Morphologically it can be readily distinguished by the petals being incurved inside the dorsal sepal (widely spreading away from the dorsal sepal and with recurved tips in *H. orbicularis*), the lateral sepals being incurved around the labellum and almost clasping it (deflexed beneath the labellum in *H. orbicularis*) and the labellum itself being strongly cupped and adorned with numerous micropapillae (flat and smooth in *H. orbicularis*). When flattened the labellum of the new species is broadly oblong-obovate whereas that of *H. orbicularis* is transversely elliptic. In both species of *Hydrorchis* the callus is hardly differentiated from the labellum lamina and is difficult to discern, although the callus of *H. cupularis* seems to be more substantial than that of *H. orbicularis.* It has also been observed that herbarium specimens and spirit-preserved specimens of the new species turn black, unlike those of *H. orbicularis*.

A drawing of *Hydrorchis orbicularis* is included for comparative purposes (**Fig. 2**).

### Conservation Status

The new species is widespread, locally common, occurring in state forests and conserved in state reserves.

### Etymology

The Latin *cupularis*, cupped, in reference to the strongly cupped labellum which is an obvious feature for the recognition of this species, even on herbarium specimens.

**Other Specimens Examined:** Western Australia: Plot 5013, Mountain Road, 3.4 km E of Nornalup, 29 Oct. 1991, *A.R.Annels 1852* (PERTH 4567757 & 3176762, MJP); Piney Lakes Reserve, 28 Oct. 1999, *G.Brockman 575* (PERTH 5533023); Piney Lakes, Murdoch Drive, Winthrop, 28 Oct. 2000, *C.J.French 2769* (CANB); 3 miles NE Camfield near Broke Inlet, 12 Oct. 1969, *A.S.George 9733D-G* (K, PERTH 294365, MEL); Banganup Swamp, Jandakot, 9 Nov. 1957, *A.S.George s.n.* (PERTH 294403); Bow River, c. 12 miles E of Nornalup, 12 Nov. 1969, *V.Mann & A.S.George 114* (K, PERTH 333263).

### Acknowledgements

We thank Laurie Adams for the Latin diagnosis, Karina Richards for technical assistance and reading the manuscript, Chris French for flowering material and the staff at PERTH for their help in various ways.

### Literature Cited

Jones, D.L., Clements, M.A., Sharma, I.K., Mackenzie, A.M. and Molloy, B.P.J. (2002). Nomenclatural notes arising from studies into the tribe Diurideae (Orchidaceae). *Orchadian* 13 (10): 437-468.

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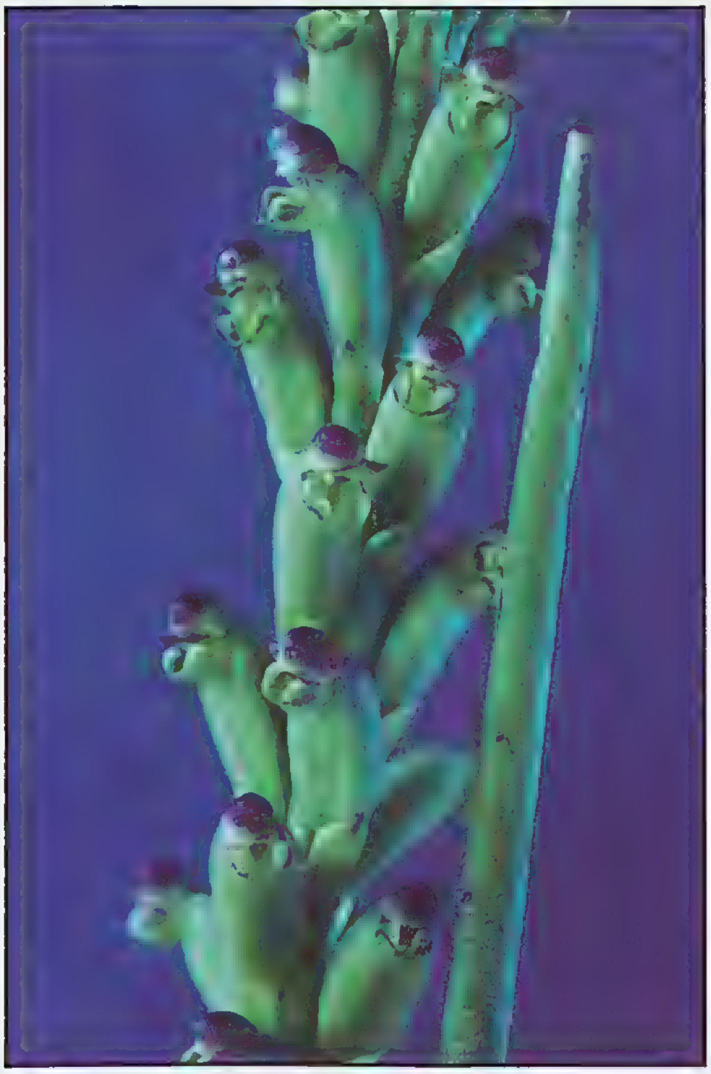
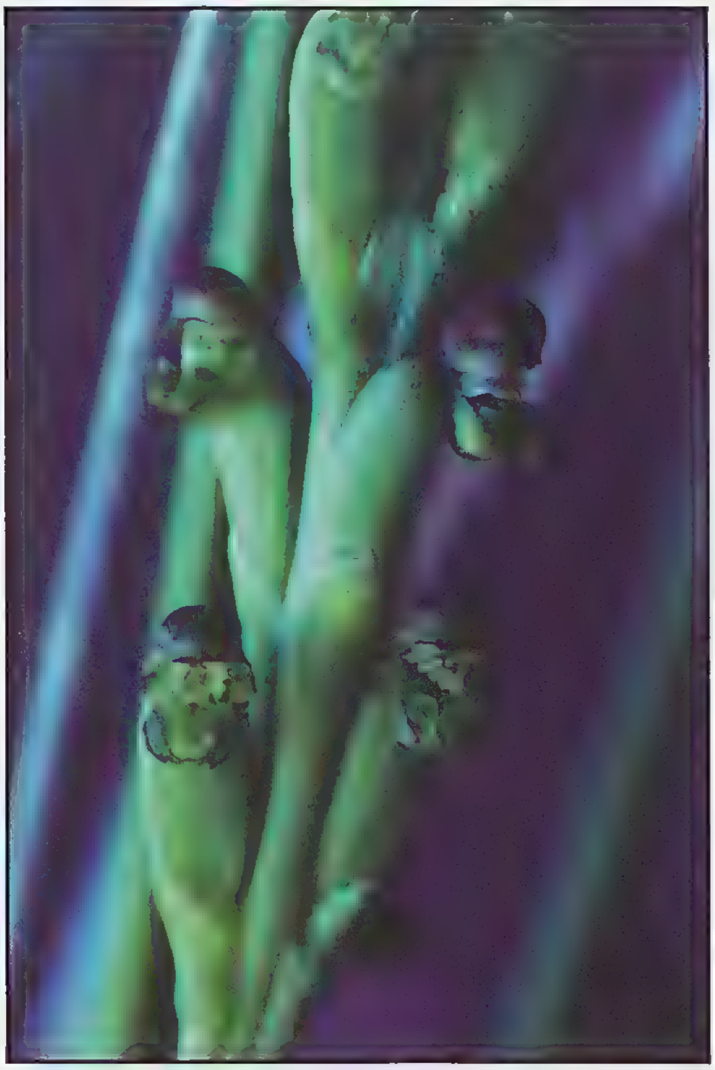
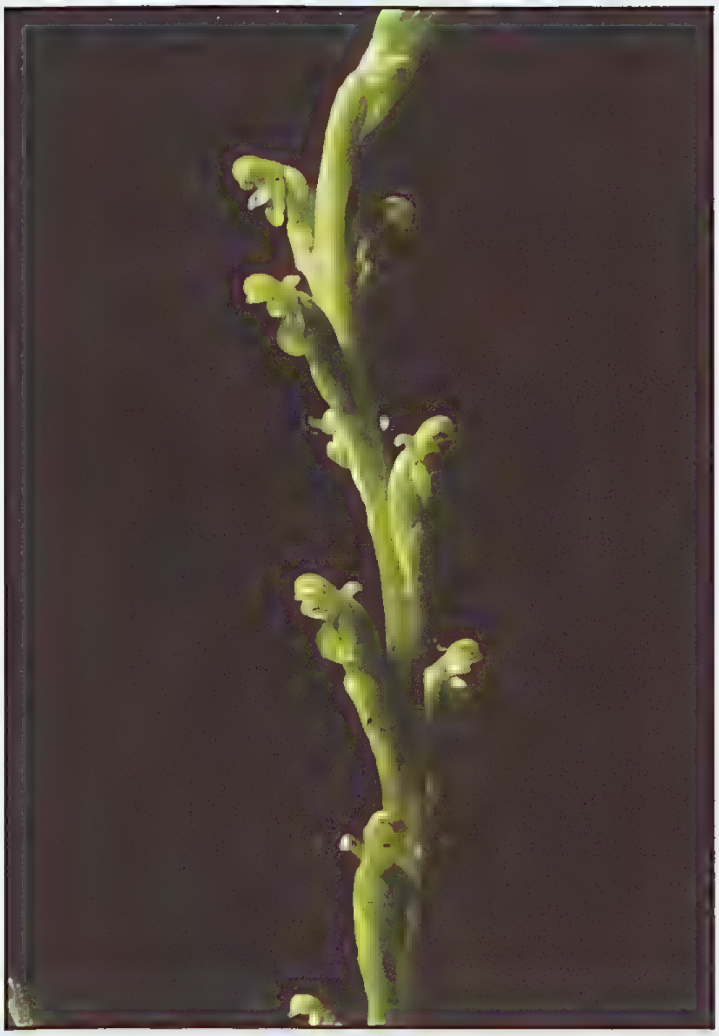


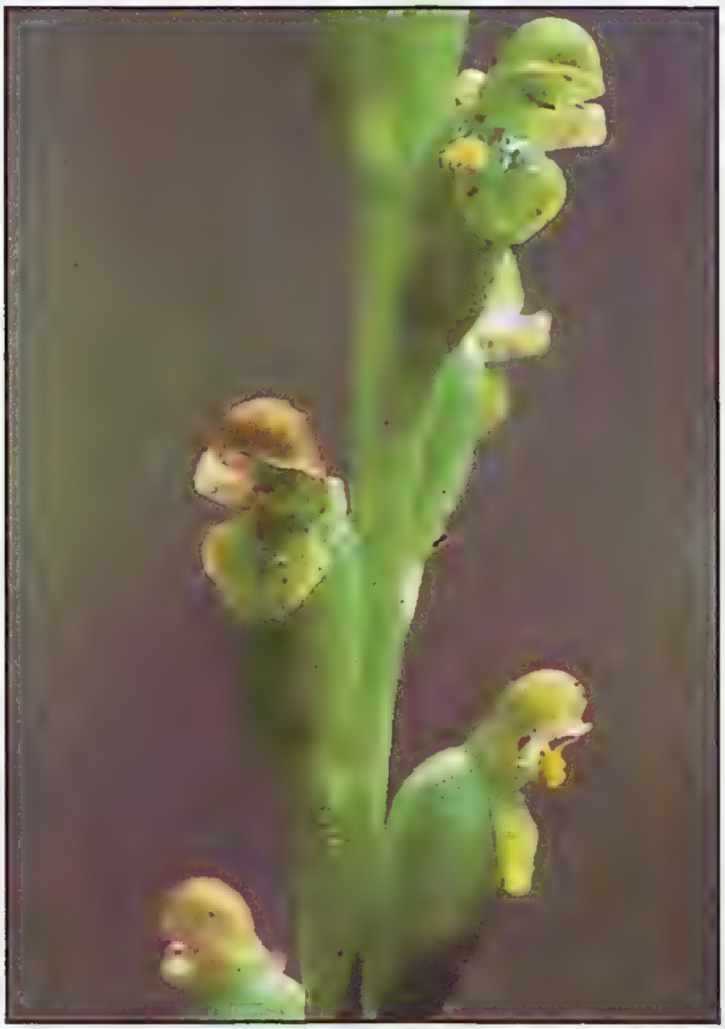
*Hydrorchis cupularis*



*Hydrorchis cupularis* (close up)



*Hydrorchis orbicularis*



*Hydrorchis orbicularis* (close up)

Photos Garry Brockman

# *Arachnorchis tessellata* - a long lost local

## (syn. *Caladenia tessellata*)

Alan W Stephenson
astephenson@vtown.com.au

*Arachnorchis tessellata* was originally discovered at Hunters Hill (Sydney) in 1876 and named by the well-known post colonial botanist, R.D. Fitzgerald and I wonder if it could be located in that vicinity today. It is also known from a couple of sites in Victoria and another in the Queanbeyan/Bungendore area of New South Wales. It is listed as a Vulnerable Species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the NSW *Threatened Species Conservation Act 1995.*

Dr Rodway, a Nowra General Practitioner of the day, discovered this species in the Huskisson area in 1931. Dr Rodway was a keen amateur botanist and regularly corresponded with, and sent plants to the Rev. H.M.R. Rupp.

*A. tessellata* was reclassified by D.L. Jones and M.A. Clements, in a general taxonomic revision of native orchids, (*The Orchadian*, Vol. 13 No 9, Sept. 2001) and was then separated from the genus *Caladenia*. It was rediscovered by well known south coast orchid identity, Leo Cady and his wife Edna in the area now known as the Huskisson Pineforest on 20-9-1959 and 25-9-1960. Leo also saw it on Pineforest Road, which runs from the Huskisson turnoff on Jervis Bay Road to the village of Tomerong. About the same time, he found another species in the same area, *Arachnorchis sp. aff. fitzgeraldii.* Neither species has been seen in that vicinity since that time, almost four decades ago despite several searches by Leo, Dr Stephen Clark, of the then Threatened Species Unit of the NPWS, Craig Stuckey, this writer and members of A.N.O.S. Illawarra.

According to Leo Cady, *A. tessellata* was also located by Alick Dockrill, in the general area of the then small New South Wales town of Heathcote during the 1960's but Leo is unsure if any formal record of that find was ever registered. One thing is certain and that is any plants, which might have been *in situ* are sure to be under the foundation of one of the several thousand homes built since then.

The story of the Huskisson Pineforest is a sad tale of poor forestry maintenance, extremely doubtful business practises, a disappearing owner and dispossessed and disappointed investors. No person except the owner of the Pineforest made any money and a rare and beautiful orchid species was made even more so.

My involvement with and interest in *A. tessellata* began with Leo relating stories and showing me drawings of his finds of what are probably the only two species of "Spider Caladenias" existing in this area. Apart from the already mentioned searches, I have tramped through the locality on my own and with a friend, Craig Stuckey, in and around the often inundated and thick scrub, which covers the majority of the Rodway locality. Unfortunately, no GPS recordings were made in the 1930's and tracks are not in precisely the same place, so some guesswork (educated and otherwise) was used in several unsuccessful efforts to locate this mysterious species.

The only other site known to contain *A. tessellata* is just south of the NSW town of Ulladulla but this site has been an Industrial Estate for several years and if there were any plants *in situ*, they are certainly no longer visible. Doesn't that sound like a familiar story?

In early October 2004 on a trip to Victoria, I was shown the species in flower by Dean Rouse and Michael Duncan and I will not disclose any further clues as to the location. I am indebted to these two scientists for their trust in me. At the same site, they showed me for the first time, flowering plants of *A. sp. aff. fitzgeraldii, Petalochilus aurantiaca,* (syn. *Caladenia aurantiaca*) and *Stegostylis clarkiae* (syn. *Caladenia clarkiae*) and a closed flower of *Thelymitra matthewsii* with its unique coiled spring-like leaf. *A. sp. aff tentaculata* was also in flower but at least I had seen this species in several other locations in Victoria and southwestern New South Wales. Then on October 24th 2004, I received a phone call from Dean Rouse of the Australian National University who informed me he had seen numerous plants of the long lost (in the Nowra area) *Arachnorchis tessellata*.

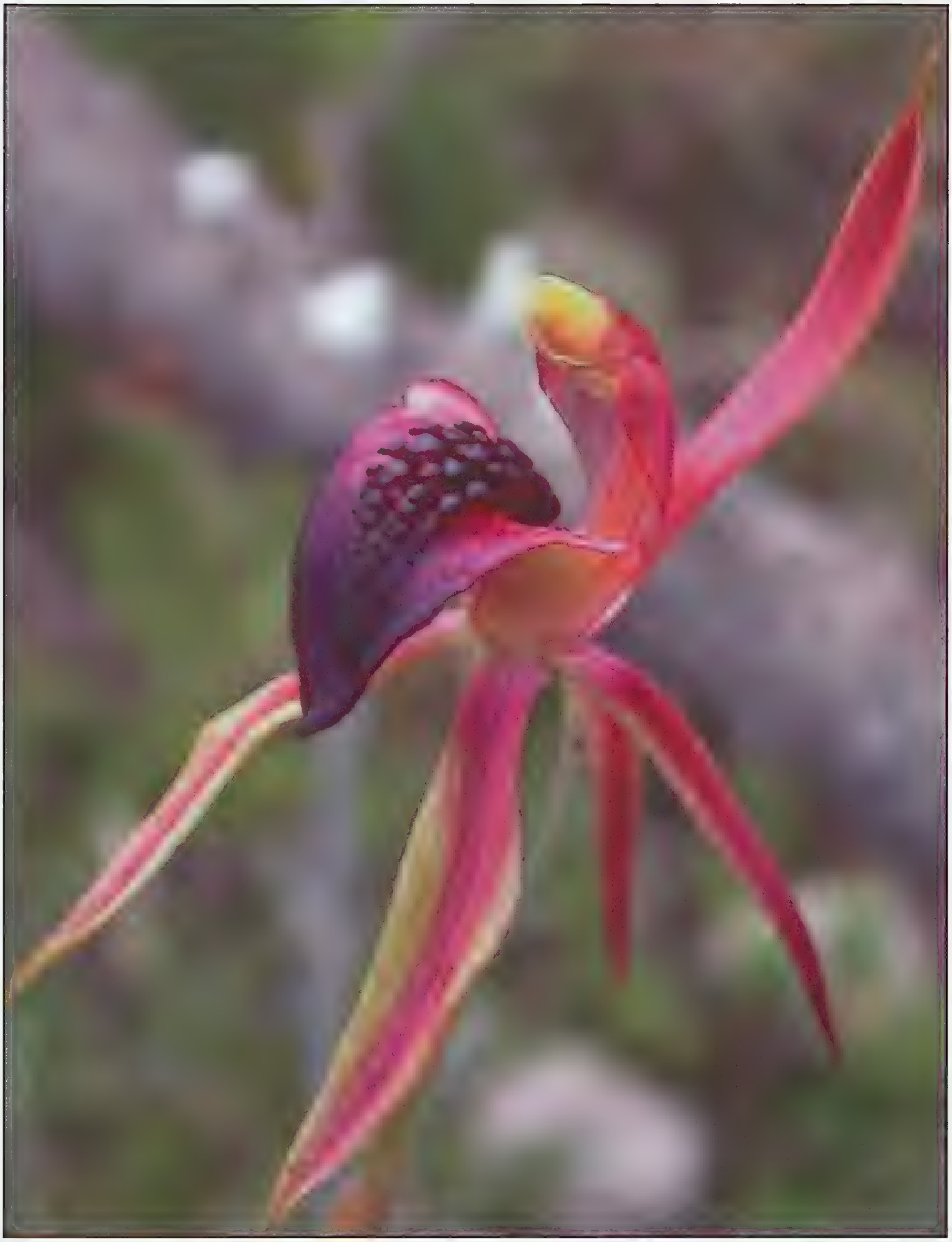
My initial feelings were mixed and ranged from euphoria to, how the hell did Dean find it there and what prompted him to look in that particular place. Then I realised that Dean is a free spirit, frequently on the lookout for anything of interest and liable to turn up anywhere. I have no reason for complaint, as my wife is very supportive of my running around the scrub at odd times. All she insists on is that I do not be too late for dinner and try to leave the ticks and leeches outside. Dean also gave me a GPS mark to find and sent the information in an E-mail, complete with location photo with notes marked for *A. tessellata* and *Thelymitra longiloba*. *Thelymitra longiloba* was formerly known as *Thelymitra media* var. *carneo-lutea* but was accorded species status by D.L. Jones and M.A. Clements in 1998.

Three days later (27-10-2004) and I was at the site. It took that long as even I could not desert those family members who had travelled from Victoria to help celebrate my 60th birthday and all I will say is that the site is west of Nowra. From the concise directions, the site was not difficult to locate and the moment I stopped my car I saw *Calochilus paludosus* on one side of the track and *C. robertsonii* on the other, both in flower. A brief walk noted numerous *Thelymitra* orchids but nothing in flower as all were in tight bud, indicating at least two weeks until flowering. Twenty metres from my parking spot there were many plants of a tall *Diuris sulphurea* in and among the sparse population of eucalypts, tussocks and rushes. It was only then I noticed the leaves, pale green, slightly hairy about 10 mm x 10 cm. The first leaves I saw had flower stems, which had been grazed but all of a sudden, flowers appeared on others. I am sure the screams of delight could be heard in Nowra as the wind gusting to 90 kph could almost carry a voice that far and this was not the precise position Dean had noted, but another colony about 50 m from his find.

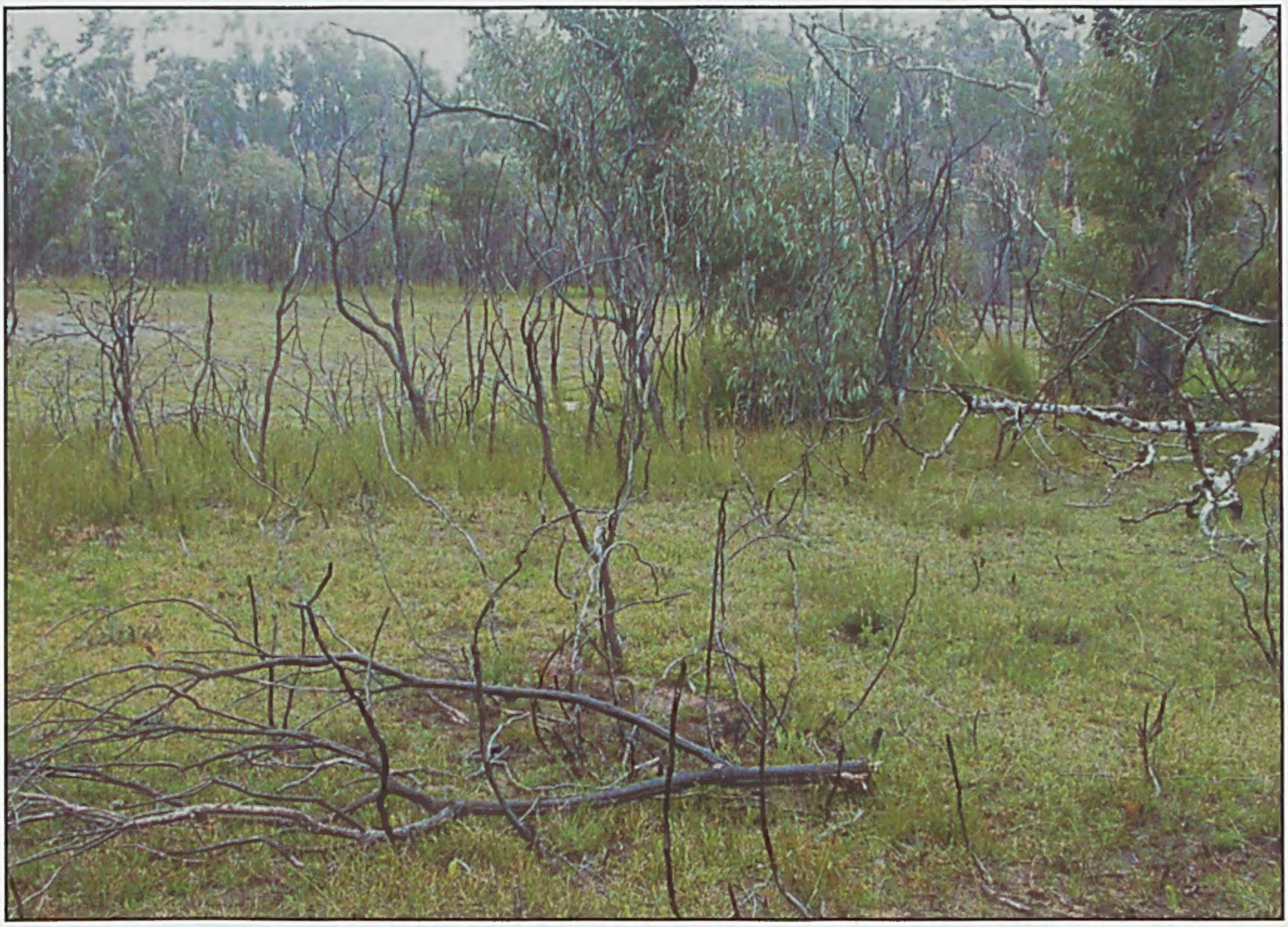
The Digital and SLR were getting a workout but photographing in the wind was not easy. Even my backpack used as a windbreak was repeatedly blown over but patience won out and the photos were taken. Leaving this site and following Deans' directions I found the edge of a wet area and noted what I assumed were the *T. longiloba* also in tight bud. It looks like another trip in mid to late November. Skirting the edge of the wet area I came upon Deans' initial find and sure enough there they were, the main colony containing about forty plants in various stages of flowering, although one plant differed from the others. This might prove to be a hybrid, although nothing was noted to indicate another parent, the labellum calli were certainly in different numbers and formation than those of *A. tessellata.*

Although the majority of plants exhibited a single flower, the proportion of those with two flowers was quite good and one plant even displayed three flowers. After more photos I noted a low growing *Diuris sp.*, which was similar to, yet different from the *D. sulphurea* about 100 m away over the brow of the hill. Walking back to my car I naturally took a different route and in an area of low heath and burned and broken *Isopogon* scrub, I came upon yet another small colony of six plants. This made four loosely linked colonies with approximately sixty plants. The last find of the day was *Caleana major* and as much as I have a great affection for this species, for once it ran a distant second on the day.

Local records of *A. tessellata* indicate it had been located in wettish areas but neither of the two sites in Victoria I have visited fall into the wet category. The recent local discovery has three of the four colonies in wettish areas but one colony broke this pattern. The assumption I make from this is that species will grow where they will and we can just sit and try to ponder why, but isn't this what keeps us interested and continually looking for that something different, or at least a different location or habitat. -oOo-



*Arachnorchis tessellata* - a long lost local
(syn. *Caladenia tessellata*) Photos Alan Stephenson



The habitat of *Arachnorchis tessellata*.

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# AUSTRALASIAN NATIVE ORCHID SOCIETY
## Geelong Group

## SHOW REPORT

On the 6th and 7th November 2004, the Geelong ANOS Group had their annual show. It was mainly held to display the *Sarcochilus* grown by members, although we do have classes for 'other genera' to be displayed as well.

Such a small plant won our show, it was a first flowering *Sarcochilus hartmannii*, beautifully grown by Don Bradshaw, the foliage was spotless and the flower nice and round, the Judges could not fault it. Don purchased this, a while back, as a very small plant from Stewart Penman when he was running Border Orchids.

Reserve Champion was a *S.* Fitzhart 'Bleeding Heart' displayed by Lorraine Fagg. This plant has a perfect flower that varies in colour down the stem, this does not detract from it in any way.

This season was funny, totally different from the year before - we only had four Dendrobiums on exhibition - two *D. kingianum* and two *D. linguiforme*, not a hybrid in the place, for the first time that I can remember there wasn't a *D.* Ella V. Leaney in sight.

Kevin Cummins got the Pre-eminent Entry of the Show with a *Rhinochilus* Lava Burst in full bloom, Kevin has these growing in a piece of pipe, which has quite decent sized holes cut at intervals around the sides, he puts the one type of cross in each piece of pipe, and hangs it up on a display stand and they look spectacular when they are all out at once.

There was a nice little collection of terrestrials on display, a *Diuris sulphurea* and a *Pterostylis baptistii* were up for competition, the others on display were not up for judging, as they had not been owned long enough to compete.

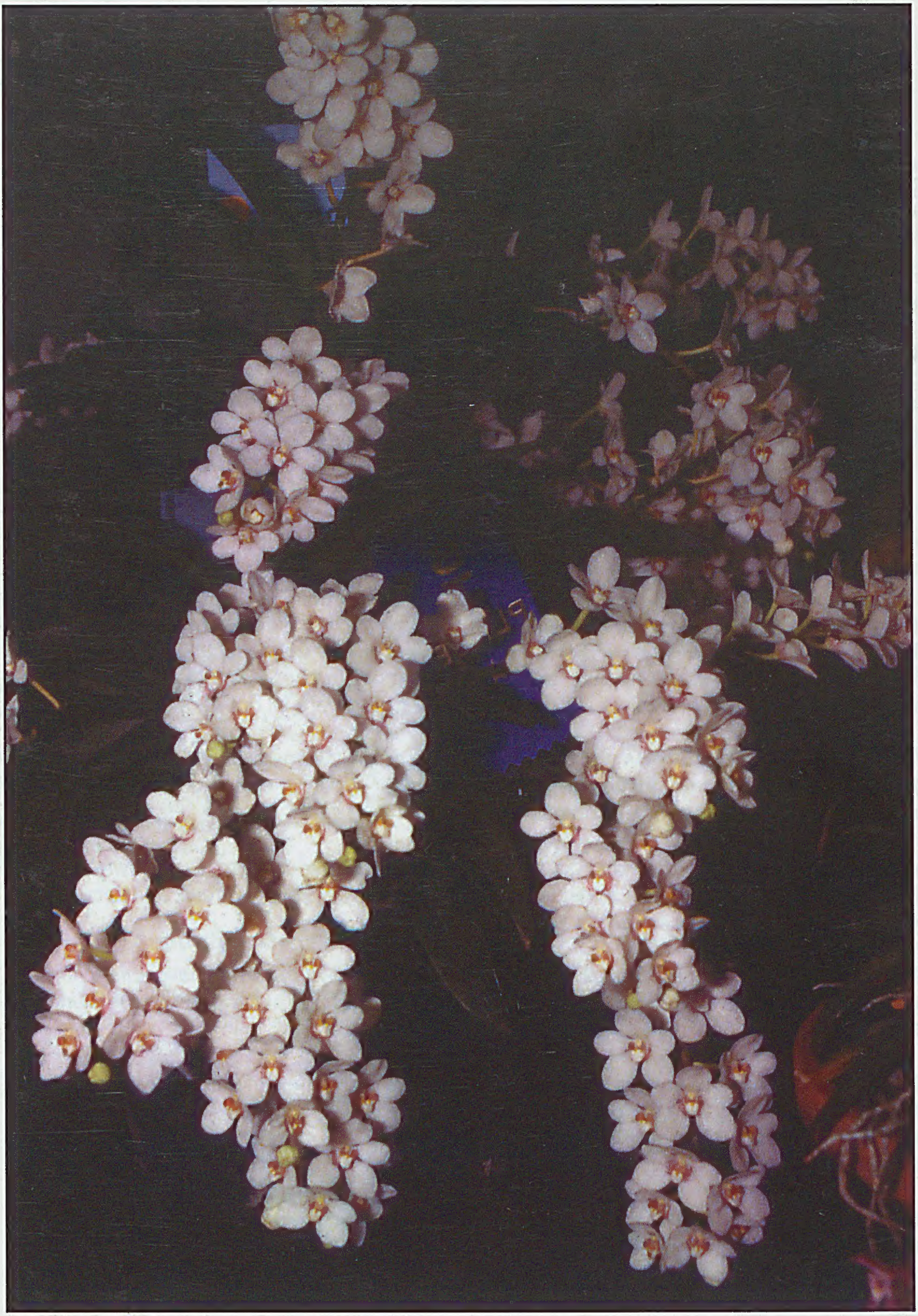
A beautiful big *Sarcochilus* Melba got the Best Specimen Hybrid award; this is owned by Jim Buchanan, who is always so meticulous in his culture. Jim was awarded our second club cultural certificate for his plant.

I am continually amazed at the variations in the colours of *Cymbidium canaliculatum*. One on display was cream with red tips on the petals, this recieved first in it's class and is owned by Malcolm Pearce.

Many of the club members came over during the weekend to help in some way, and some of the more mundane jobs were done by Winston on the door entry, Denise and Gordon selling tickets in a raffle, Lyle was helping with the washing up and Doreen was preparing food for us to eat.

Everyone helped in some small way, it is great to have so much good will amongst our group and I thank them one and all.

Frances Wilde
President



*Sarcochilus* Melba grower Jim Buchanan
Cultural Award Best Specimen Hybrid

Photo Frances Wilde